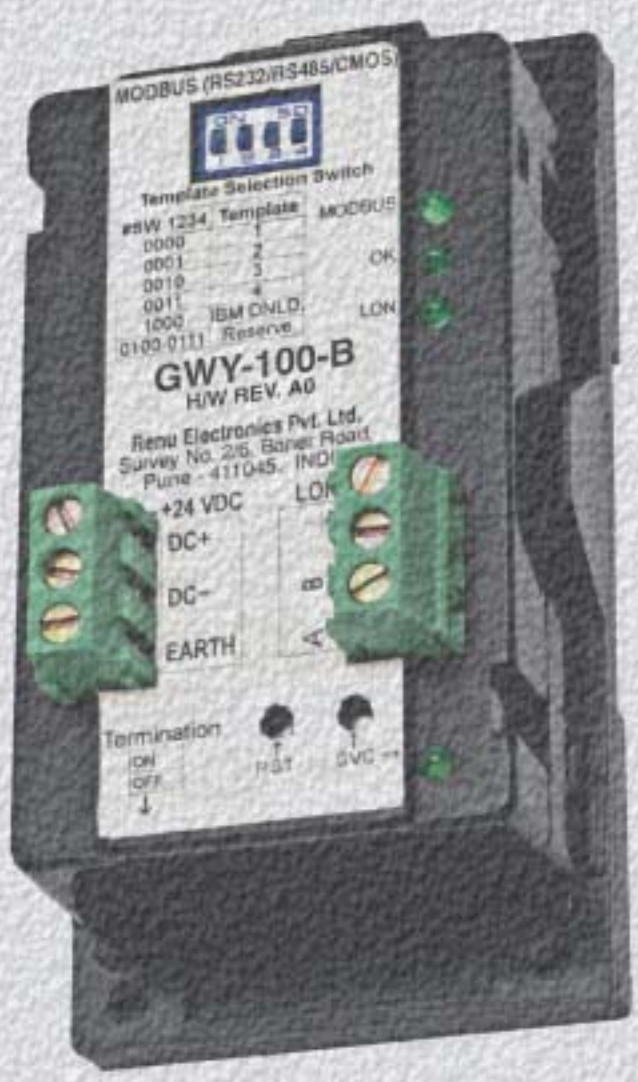
LONWORKS GATEWAY (GWY-100-B) USER'S MANUAL



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REV. 1

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If service is required then pack the unit in its original packaging container or, if unavailable, any suitable rigid container. If a substitute container is used, surround the unit with shock absorbing material; damage in shipment is not covered by the warranty. Include a letter with the unit describing the difficulty and Hardware Revision and Software Version. Send to the following address:

Renu Electronics Pvt. Ltd.
Survey No. 2/6,
Baner Road,
Pune-411045

All returns will be tested to verify customer claims of noncompliance with the product warranty. Improper return packaging, which makes verification impossible, will void the warranty. If noncompliance is verified and is not due to customer abuse or the other exceptions described with product warranty, Renu Electronics will, at its option, repair or replace the Product returned to it, freight prepaid, which fail to comply with the foregoing warranty, provided REPL is notified of such noncompliance within the one-year warranty period.

ASSISTANCE

This manual is designed to provide the necessary information for trouble-free installation and operation of your new Gateway product. However, if you need assistance, please call Renu Electronics Pvt. Ltd. at 91-20-27292840 or visit our web site at www.renuelectronics.com

MANUAL REVISION

If you contact us in refference to this manual, please include the following document number

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Rev 0	07/09/2006	1. Chapter 5: section added 5.5.2; Section 5.6 updated. 2. Chapter 4: Note is added for Master-Master mode
Rev 1	13/12/2011	System requirement for gateway setup software added. (Section 3.2)

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For New product: This product is warranted against defects in materials and workmanship for a period of 12 months from the date of shipment to Buyer.

For Rectified Products: Any product that will be replaced will have Warranty for 6 months or upto Original Product Warranty period whichever is greater.

The warranty is limited to repair or replacement of the defective unit at the option of the manufacturer. This warranty is void if the product has been altered, misused, dismantled, or otherwise abused.

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IMPORTANT

Gateway Products are intended to be Protocol Converters/Data Sharer devices that can also take control actions on request of device being connected. It is assumed that user is well acquainted with the PLC / Inverters / Controllers being used.

Any Mechanical or Electrical Modification to this Unit will void all Warranties.

Contents

INTRODUCTION 5
1.1 Purpose of this manual 6
1.2 Introduction to GWY-100-B 6
1.3 GWY-100-B Specifications 8
HARDWARE 9
2.1 Dimensional details And Mounting Instructions 10
2.2 Communication Port Details 11
2.3 Switch Settings 13
2.4 Push Buttons 14
2.5 LED Status 14
GETTING STARTED 15
3.1 Introduction To GWY-100-B 16
3.2 GWY-100-B Operation-Configuration And Communication 16
3.3 Introduction To LonWorks 18
3.4 Network Variables 19
3.5 Binding of Network Variables 20
GWY-100-B FEATURES 22
4.1 Gateway Modes and Data Handling 23
4.1.1 Master-Master Configuration 23
4.1.2 Master-Slave Configuration 24
4.2 Repeat Cycle 26
4.3 Control Word 26
4.4 Error Indication Bit 27
4.5 Communication Parameters 27
CREATING PROJECT 28
5.1 Install Gateway Setup Software 29
5.2 Install Short Stack Wizard 29
5.3 Run the utility LonWorks Gateway 29
5.3.1 Purpose of Using LonWorks Gateway Utility 29
5.3.2 Flowchart Steps for configuring GWY-100-B(LonWorks Gateway) 30
5.3.3 Create A New Project 32
5.4 Open Exsting Gateway Project 40
5.5 Create Template using LonMaker 40
5.5.1 To create a New Network: 40
5.5.2 To open the existing network using LonMaker 55
5.6 Troubleshooting for LonWorks 57
APPLICATIONS 58
6.1 Possible Applications of GWY-100-B 59
COMMUNICATION CABLES FOR GWY-100-B 61
7.1 Toshiba VF-S7/S9/S11 to GWY-100-B(EC-P-050-00) 62
7.2 IBM Cable for GWY-100-B(IBM0909-1-00) 63

INTRODUCTION

In this chapter. . . .

- Purpose of this manual
- Introduction To GWY-100-B
- GWY-100-B Specifications

1.1 Purpose of this manual

Thank you for purchasing GWY-100-B Product from Renu Electronics.

The intention of this Operation Manual is to provide a guide for Safe installation, Configuration and operation of GWY-100-B. **Functionality of all the Gateway models is same.** Read this operation manual thoroughly before installing and operating GWY-100-B.
This document is based on information available at the time of its publication. While efforts have been made to be accurate, the information in this document may not cover all the details or variations in hardware or software. Features described herein may not be present in all hardwares. Renu Electronics reserves the right to update information in this publication without prior notice.

1.2 Introduction to GWY-100-B

GWY-100-B is a communication bridge between Lonworks Network interface on one side and various serial protocols on the other side. Lon device updates the data in the internal memory of the gateway. Gateway then updates corresponding data of the serial device by writing this data to serial device and vice versa.In short GWY-100-B makes possible Lonworks node to act as serial device and vice versa.

GWY-100-B is externally powered from 3 pin terminal block and power is isolated from both communication ports. Both the communication ports are also isolated from each-other. It has two communication ports, one with Lonworks network interface TP/FT10 (78Kbps, Free Topology) and serial port with RS232 / RS422 / 2 or 4 wire RS485.

Microsoft Windows® based configuration software, Gateway Setup, helps user to configure Gateway unit. 'Configuration' means making the Gateway unit work as per the system requirements. The complete configuration for a unit is termed as 'Project'. Project comprises of device names, Register addresses,condition for block execution etc.

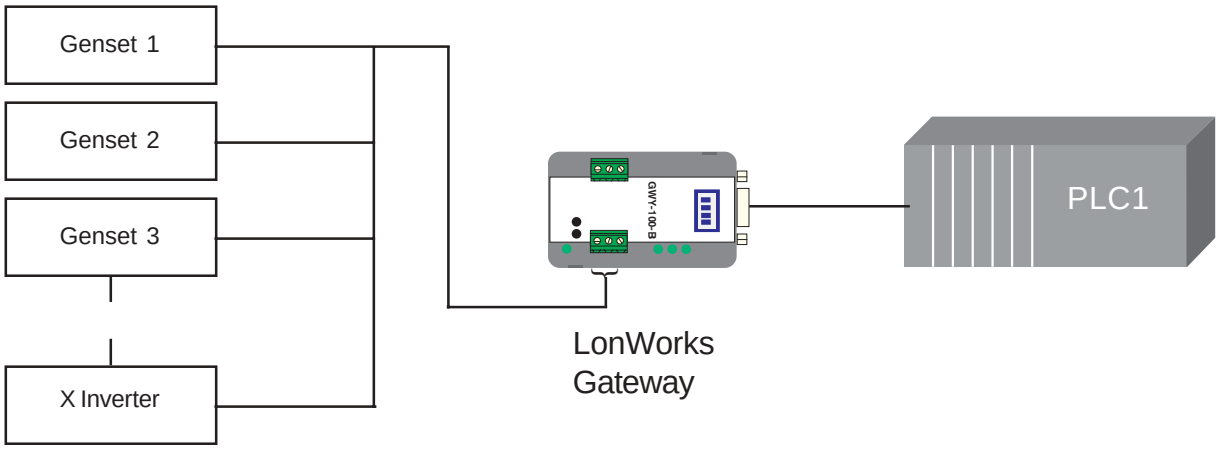
Block may contain information like copy number of words from one device to other device and conditions for copy, if any. Gateway transfers data between two devices by execution of blocks.

After the Project is defined, Drivers for required devices and Project should be downloaded. Gateway can now communicate with the Lonworks devices and serial devices(e.g. PLC or SCADA).

Configuration Of GWY-100-B

Note: Please refer 'IBM Download' from chapter 2-2.3.

Normal Operation:



Connect Lon device to Gateway via Lon port and serial device(PLC or Inverter) via the PLC's communications port (correct cables are required) and the PLCs can easily exchange information with the Lon devices.

1.3 GWY-100-B Specifications

Power	:	24 V DC, 2.5 W
LED's	:	3 LED's for status indication and 1 LED for device configuration status
Switches	:	4 switches which decides IBM download and Specific Template selection (if applicable)
Push Buttons	:	2 push buttons SVC and RST
Communication Ports	:	2 Communication ports with
	COM1 :	RS232 / RS422 / RS485 / CMOS
	COM2 :	LonWorks Network Interface.TP FT-10 (78 Kbps, free topology)

(Isolation between communication ports and Power supply, through DC-DC coupler is 1 KV)

COM1 / PLC1	:	Connects to PC for setup download or connects to PLC1 at runtime.
COM2 / PLC2	:	LonWorks Network Interface.TP FT-10 (78 Kbps, free topology)

(Isolation between communication ports, through opto-isolation is 1KV rms for 1 min)

Operating Temperature	:	0^{O} to 60^{O}C
Storage Temperature	:	-20^{O} to 80^{O}C
Humidity	:	10% to 90% (Non condensing)
Mounting	:	DIN rail or back panel mounting
Dimensions (DIN rail)	:	105mm(L) X 40mm(D) X 51mm(W)
Weight	:	125 gm approx.
Certifications	:	CE with UL certification
Immunity to ESD	:	Level 3 as per IEC1000-4-2
Immunity to Transients	:	Level 3 as per IEC1000-4-4
Immunity to Radiated RF	:	Level 3 as per IEC1000-4-3
Immunity to Conducted RF	:	Level 3 as per IEC1000-4-6
Emissions	:	EN55011 CISPR A

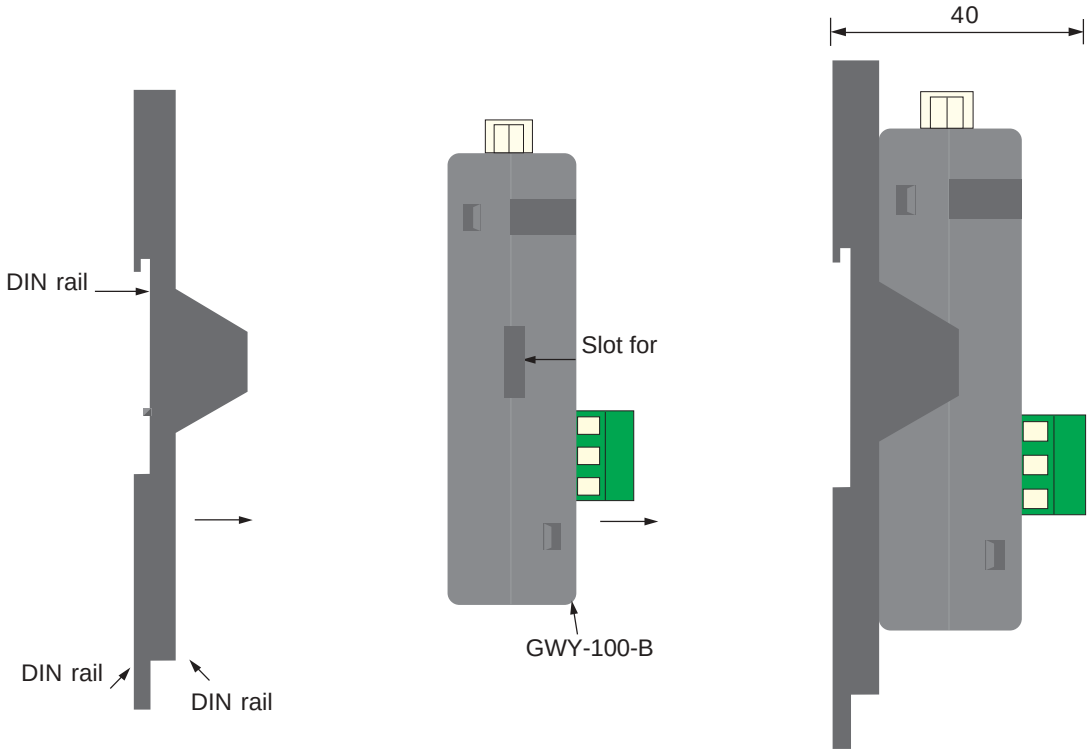
HARDWARE

In this chapter. . . .

- Dimensional Details And Mounting Instructions
- Communication Port Details
- Switch Settings
- Push Buttons
- LED Status

2.1 Dimensional details And Mounting Instructions

GWY-100 -Bunit can be mounted on a back panel or on a DIN rail or can be left hanging. It comes with a separate DIN rail plate when it is packed. User will have to attach the DIN rail plate to the unit if it has to be mounted on a panel or DIN rail. If it has to be left hanging, make sure to screw the cables to the DB9 connectors on the Gateway unit. DIN rail plate also has the provision to screw the unit to the back panel. Following drawing shows how to attach the DIN rail plate to the unit:

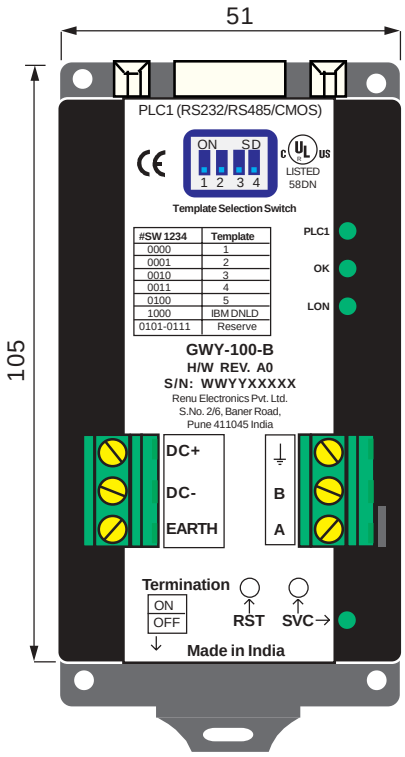


Follow instructions given below:

1. Attach the DIN rail plate to the unit using the clamps on the DIN rail plate.
2. Pull out the clip of the plate.
3. Put the unit on the DIN rail.
4. Push the clip in to secure the unit on the DIN rail.

GWY-100-B unit is shipped with a separate DIN rail plate which has to be attached to the unit, if needed. User can use the unit with or without the DIN rail plate. Following sketch shows mounting details of GWY-100-B with the DIN rail plate.

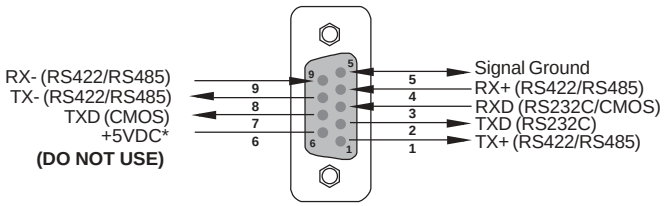
The following diagram shows Dimensional details.



2.2 Communication Port Details

Gwy-100-B has two communication ports COM1 and COM2. COM1 port is compactible to RS232/ RS422/ RS485 and CMOS signal levels. Pinout of this port is given as follows:

PLC1 / COM1



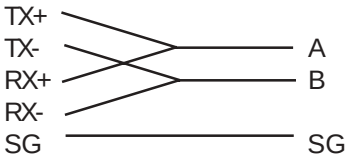
DB9 Female

A and B are polarity insensitive.So Twisted pair can be connected
**Do not use pin no. 6 of PLC1 / COM1.*
***Refer our website (www.renuelectronics.com) for your specific Cable requirements*

Pin Description

Pin	Name	Signal Level	Description
1.	TX+	RS422 / RS485	Differential Transmit +, also referred as TXA
2.	TXD	RS232	Transmit
3.	RXD	RS232 / CMOS	Receive
4.	RX+	RS422 / RS485	Differential Receive +, also referred as RXA
5.	GND	-	Signal Ground common to all signals.
6.	+5VDC	-	**DO NOT USE**
7.	TXD	CMOS	Transmit
8.	TX-	RS422 / RS485	Differential Transmit -, also referred as TXB
9.	RX-	RS422 / RS485	Differential Receive -, also referred as RXB

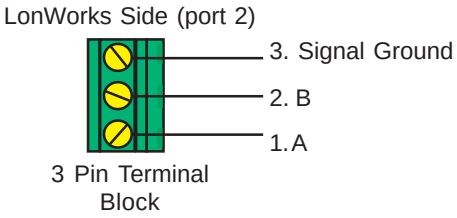
User can convert RS485 4 wire + Signal Ground system to a 2 Wire + Signal Ground system by shorting following signals in the communication cable:



Note: If user has attached shield to Earth on Device end, leave the shield open on Gateway end. If user has connected shield to Signal Ground on Device end, connect shield to Signal Ground on Gateway end.

***Upto 31 Devices can be multi-dropped on RS485* port of Gateway.**

Port Details for Lon Port



2.3 Switch Settings

There are 4 switches which decides
1. IBM download (Switch 1).
2. Specific Template selection(if applicable)

IBM download
1. For downloading Firmware,drivers and project switch off the GWY-100-B unit.
2. Keep the Switch positions as follows-

Switch No	Position
1	ON
2	OFF
3	OFF
4	OFF

User needs a special IBM download cable for downloading configuration in Gateway.

Pin details of IBM download cable for GWY-100-B are as follows:

DB9 Male (Gateway)	DB9 Female (IBM)
2	2
3	3
5	5

3.Power ON the unit again.Ok LED starts blinking. This means that unit is in download mode.
4.For the first time download all firmware from the path:
..\Gateway ...\GWY-100 (LonWorks Gateway)\Firmware\Lonworks_Generic_V2.00B.ABS, drivers and project.
5.After the download is completed power off the unit. Keep Switch 1 to OFF position.
For normal operation keep all the switches in OFF position before power up the unit.
Ok LED is in steady state.

Note: Switches 2 to 4 are used for Template selection (if applicable).These switches are used for customized applications where the user has different types of templates containing UNVTs and SNVTs. In this case using switches template selection is done.

IMPORTANT NOTE:
AS GATEWAY HAS MULTIPLE SIGNALS ON ITS COMMUNICATION PORTS, IBM CABLE FOR GATEWAY MUST HAVE ONLY THREE RS232 SIGNALS (TXD, RXD AND GND) AS MENTIONED ABOVE.

2.4 Push Buttons

GWY-100-B has Reset(RST) and Service (SVC) push buttons.

SVC:

Service push button is used during installation(when prompted by LonMaker program).
While commissioning the device, Network tool(e.g. LonMaker) asks for Service pin.
At that time Press SVC push button to get the device detected by Network tool.

SVC push button should be pressed only during installation.

RST:

Reset push button is required to reset the FT3120 Smart Transceiver chip if error is occurred on LON side which is not recoverable. The error status is shown by Service Led,which remains ON (steady).

2.5 LED Status

There are 3 LED's for status indication and 1 LED for device configuration status on GWY-100-B unit.

LED status

Service LED:

Flashing : Node has application but is not installed in the network. (Unconfigured node)
Solid : Node is unconfigured and applicationless. Indicates errors detected by the neuron self test routine.
OFF : Node is configured and installed in the network.

OK LED:

Flashing : IBM Download mode.
Solid : PLC Communication OK.
OFF : No firmware.

LON LED:

Flashing : Receiving frames from LonWorks network.

PLC1 LED:

Flashing : Receiving frames from PLC1 Port.

GETTING STARTED

In this chapter. . . .

- Introduction To GWY-100-B
- GWY-100-B Operation
- Introduction To LonWorks
- Network Variables
- Binding Of Network Variables

3.1 Introduction To GWY-100-B

Gateway is a Protocol Converter / Data sharer between devices like PLCs, inverters (Adjustable Speed Drives) and Lon Devices. Gateway has one serial port that connect with serial device and Lon port communicates with Lon networks. These devices share data through Gateway. Gateway updates data on serial device when data in an internal memory of GWY-100-B is updated by a Lon device and vice versa.The device that requires data is called Destination Device and the device that provides data is called Source Device. Information could be,

- value of a PLC register.
- Command from Source Device to Destination Device to perform any action at the destination end.

3.2 GWY-100-B Operation-Configuration And Communication

Gateway can communicate with serial and Lon devices using appropriate cables and configuration. Microsoft Windows® based configuration software, Gateway Setup, configures the Gateway unit.

System Requirement for Gateway setup software are:

Windows Version:	Microsoft Windows XP / 2000, Windows 7 / VISTA (32/64 bits)
Processor:	PENTIUM or higher
Hard disk Space:	5 MB or more
Serial Mouse:	Required
RAM:	64 MB or more
Display resolution:	800 X 600 (VGA) or better
Display colors:	16 bit color

Complete configuration for a Gateway using the Gateway Setup is termed as a 'Project'. A Project consists of Devices to be attached on two ports, Communication settings for two ports to communicate with two devices, Register addresses for data transfer, Conditions for data transfer etc.
Note: For LonWorks, PLC2 settings are fixed in GWY-100-B.

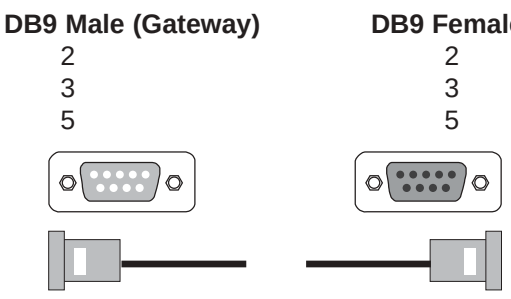
Gateway can now communicate with the specified devices without any change in the Gateway hardware. To communicate with a device, Gateway needs Communication Drivers for the devices and 'Gateway - Device' communication cables.

Each Device has a unique and predefined protocol for communication. Gateway driver has this protocol to communicate with the desired device. As two devices are connected on Gateway, it requires two drivers for communication.

User MUST download Project, PLC1 driver and PLC2 driver in Gateway before installing any system using Gateway. Gateway can accept drivers and configuration data on either of the ports. User needs a special IBM download cable for downloading configuration in Gateway.

If any change in the current / working project is made, user must download the changed project in Gateway.

Pin details of IBM download cable for GWY-100-B are as follows:



IMPORTANT NOTE:
AS GATEWAY HAS MULTIPLE SIGNALS ON ITS COMMUNICATION PORTS, IBM CABLE FOR GATEWAY MUST HAVE ONLY THREE RS232 SIGNALS (TXD, RXD AND GND) AS MENTIONED ABOVE.

1. For downloading Firmware,drivers and project switch off the GWY-100-B unit.
2. Keep the Switch positions as follows-

Switch No	Position
1	ON
2	OFF
3	OFF
4	OFF

3.Power ON the unit again.Ok LED starts blinking. This means that unit is in download mode.
4.For the first time download all firmware,drivers and project.
5.After the download is completed power off the unit. Keep Switch 1 to OFF position.
For normal operation keep all the switches in OFF position before power up the unit.
Ok LED is in steady state.

3.3 Introduction To LonWorks

LonWorks® is an intelligent operation network which simplifies communication between groups of various control and automation devices by different manufacturers. This technology strengthens the trend of deviation from traditional hierarchical management methods and centralized systems to distributed-intelligence systems.

LonWorks system is the open solution for building and home automation,Industrial, Transportation and public utility control networks.

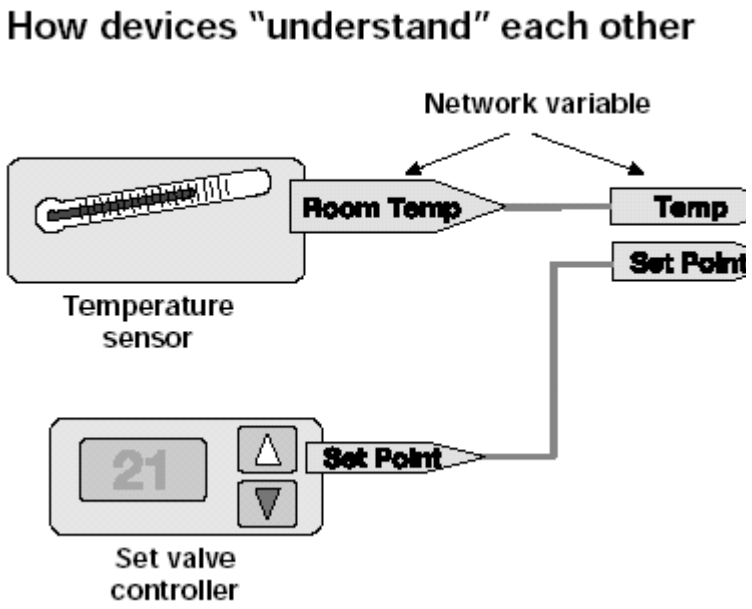
A Lonworks network uses lonworks protocol also known as ANSI/EIA 709.1.Control Networking Standard working in peer to peer fashion to monitor sensors,control actuators,communicate reliably,manage network operation and provide complete access to network data.

LON stands for Local operating network and was introduced by Echelon corporation.
It is similar to LAN network which carries short sense messages containing status and commands to trigger the action.
Local operating network consists of intelligent devices or nodes that are connected by one or more communications media and communicate with one another using common protocol. Nodes are programmed to send messages to one another in reaposne to changes in various conditions and to take the action in response to messages they receive.

Nodes on LON may be thought of as objects that respond to various inputs and produced the desired outputs.
Linking the inputs and outputs of networks objects enables the network to perform applications .

3.4 Network Variables

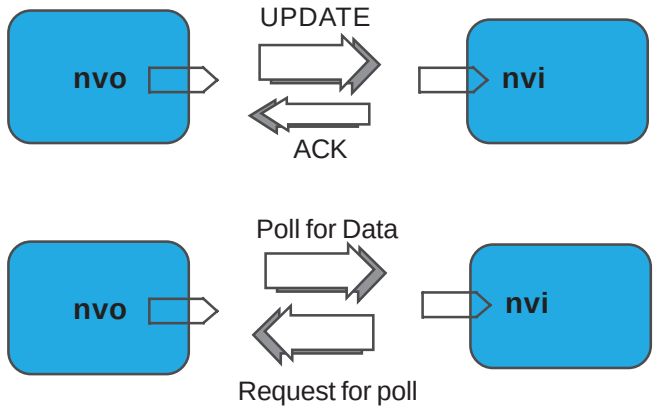
The data exchange between LON nodes is achieved in a LON network via so-called Network variables.They form the logical interface.



Network variable is any data item (temperature,a switch value) that particular device application program expects to get from other devices on the network(an input network variable) or expects to make available to other devices on the network(an output network variable).

Input Network Variable:
A network variable that provides information to the device from some other devices on the network. This variable accepts data from LonWorks Network.

Output Network Variable
A network variable that provides information from a device to other devices on the LonWorks network.



Every network variable has a type that defines the units,scaling and structure of the data contained within the network variable.Network variables must be the same type to be connected.

There are two types of network variables.

SNVTs – A standard network variable type is defined for commonly used types
In order for applications from multiple manufacturers to easily interoperate using network variables, the data within the network variable must be interpreted in same Way.
As an example,all temperature values must be transmitted over the network media in a common format which may have been Kelvin,Celsius or Fahrenheit but only one of these is used for true interoperability.This is facilitated by Lonmark Association which has defined and published over a hundred common network variables.These are reffered as "***Standard Network Variable Types***".

UNVTs - Manufacturers may define their own "***User-defined Network Variable Types***".

3.5 Binding of Network Variables

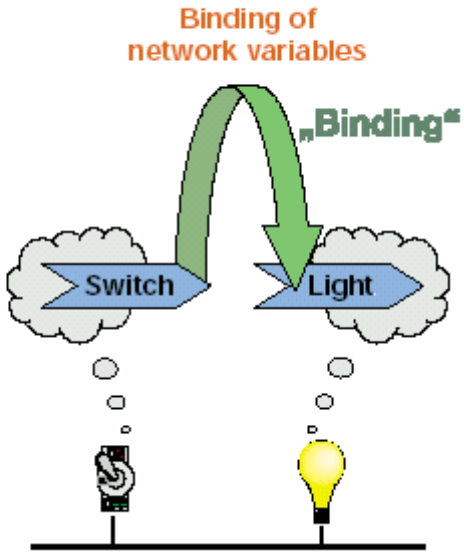
Through the binding following criteria are met :
1. Who is communicating with whom?
2. What information is being exchanged?
3. How is information is being exchanged?

The application program in a device doesnot need to know anything about where the input network variables come from or where the output network variables go.
when the application program has changed a value for output network variable it simply passes the new value to device firmware.Via a process that takes place during network design and installation called *binding,*the device firmware is configured to know the logical address of other devices or group of devices in the network expecting the network variable and it assembles and sends the appropriate packets to these devices.
Similarly when the device firmware receives an updated value for input network variable required by application program ,it passes the data to the application program.
The binding process thus creates the logical connections between an output network variable in one device and an input network variable of other devices or group of devices.Connections may be thought of as "virtual wires".
If one device contains a physical switch ,with a corresponding output network variable Called switch on/off and another device drives a light bulb with corresponding input network variable called lamp on/off ,creating a connection by biniding these two network variables has same functional effect as connecting the physical wire from switch to the light bulb.

Binding Tool

How devices "talk" to each other

- Virtual wire produced and altered with a network tool
- can be altered without re-programming the device
- easy additions, deletions and modifications are possible



This normally occurs with the aid of a PC and software tool.The software tool is the biniding tool that is connected to LON network.
The course of events is as follows :

Consider virtually there are two devices Sensor & Lamp.The user wants sensor to contain,nvoSwitch,output NV and Lamp to contain the nviLamp,input NV.
To get nvo Switch in sensor and nviLamp in Lamp Network tool requires corresponding xif files i.e device interface file for each device when designing a network that uses these devices.
So for sensor device such a xif file is choosen which contins the nvoSwitch as output network variable & for Lamp device nviLamp as input.
User connects on the PC screen the output network variable of the sensor with the input network variable of the lamp.

All the bindings within LON network are saved on to the PC's hard drive.
The tool then sends all the bindings to all the nodes.
Each node receives the part relevant for itself and saves this information.The Lon node is then described as **configured**.
From this point on,the switch node will send all changes to its output network variables,nvoSwitch, automatically to the luminary node or more precisely to input network variable,nviLamp.

Result : the room lighting works.

The biniding of input and output network variables thus forms the logical connection between the nodes.

Network Management or binding tool :LonMaker for Windows Integration Tool,

GWY-100-B FEATURES

In this chapter. . . .

- Gateway Modes
- Repeat Cycle
- Control Word
- Error Indication Bits
- Communication Parameters

4.1 Gateway Modes and Data Handling

Gateway has two modes of operation: Master-Master and Master-Slave. Before explaining these modes further Master and Slave concept should be explained.

Master:
Master is a Device which initiates communication.

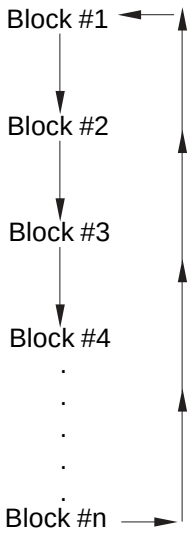
Slave:
Slave is Device which processes Master's query, takes necessary action and responds to the query, if necessary.

4.1.1 Master-Master Configuration

In this mode both Gateway ports (PLC1 & Lon) are master in nature and devices connected on these ports are slave. Gateway ports initiate communication when the proper Gateway-Device communication cable is attached. Data is transferred in blocks. This transfer can either be a continuous process or as per requirement. A control word (Section 4.3), present in device on either side, enabled from Gateway Setup Software, can control the block execution.

When control word is disabled, then block transfer is a continuous process. A block of data is fetched from one device and transferred to the other device. The amount of data to be transferred (Number of words) depends on Block definition in "Block Definition Area" in Configuration Software. One block is executed at a time. A cycle consists of execution of blocks from #1 to #n.

Execution of blocks is performed as follows,

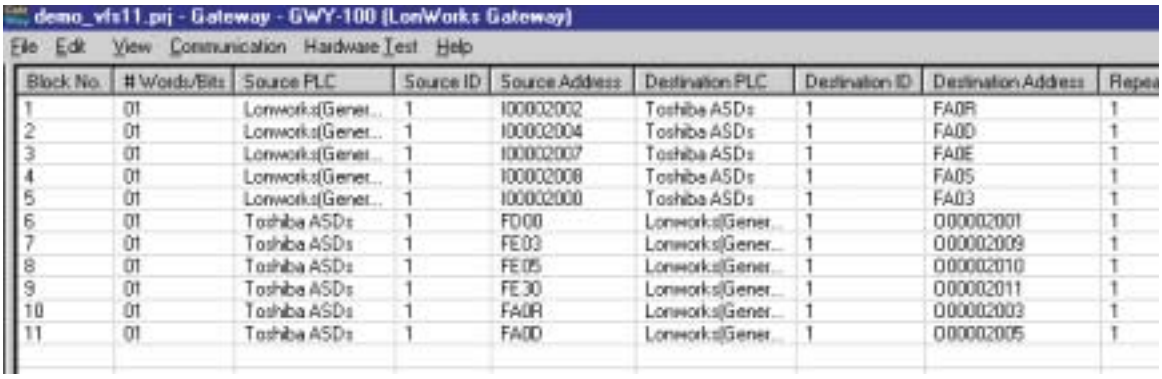


When Control word is enabled, it decides which block has to be executed by writing a specific data in the control word.
Example 4.1 Toshiba ASD-LonWorks Master

BEFORE REFERING TO THE EXAMPLE PLEASE GO THROUGH THE CHAPTER 5.

This configuration can be used to make Toshiba ASD function as a Lon Master. Configure Gateway ports as: PLC1 Protocol: Toshiba ASDs and PLC2 Protocol: Lonworks Generic (Master). PLC1 of Gateway is configured as Toshiba ASD master protocol so Toshiba ASDs can be connected to Gateway COM1. PLC2 port is configured as LonWorks master so any Lon device can be connected on Lon port.

Blocks can be defined as shown in the picture below:



Block No.	# Words/Bits	Source PLC	Source ID	Source Address	Destination PLC	Destination ID	Destination Address	Repea
1	01	Lonworks(Gener...	1	I00002002	Toshiba ASDs	1	FA0R	1
2	01	Lonworks(Gener...	1	I00002004	Toshiba ASDs	1	FA0D	1
3	01	Lonworks(Gener...	1	I00002007	Toshiba ASDs	1	FA0E	1
4	01	Lonworks(Gener...	1	I00002008	Toshiba ASDs	1	FA05	1
5	01	Lonworks(Gener...	1	I00002000	Toshiba ASDs	1	FA03	1
6	01	Toshiba ASDs	1	FD00	Lonworks(Gener...	1	000002001	1
7	01	Toshiba ASDs	1	FE03	Lonworks(Gener...	1	000002009	1
8	01	Toshiba ASDs	1	FE05	Lonworks(Gener...	1	000002010	1
9	01	Toshiba ASDs	1	FE30	Lonworks(Gener...	1	000002011	1
10	01	Toshiba ASDs	1	FA0R	Lonworks(Gener...	1	000002003	1
11	01	Toshiba ASDs	1	FA0D	Lonworks(Gener...	1	000002005	1

Words defines number of registers to be read / written between two devices.
Block #1: Gateway reads 1 words starting from I00002002 from internal memory which corresponds to input network variable and writes this word data to Toshiba ASD's corresponding parameter as shown in project.
Block #6: Gateway reads Toshiba ASD's parameter and updates the corresponding NV from an internal memory of GWY-100-B.

It sends updated data (Output NV data) to the Lon device and updates the input NV data receivibg from the Lon device in an internal memory.

As this example has 11 blocks, Gateway will execute Block #1,Block2,....Block11 after executing Block #11 continuing this cycle forever.

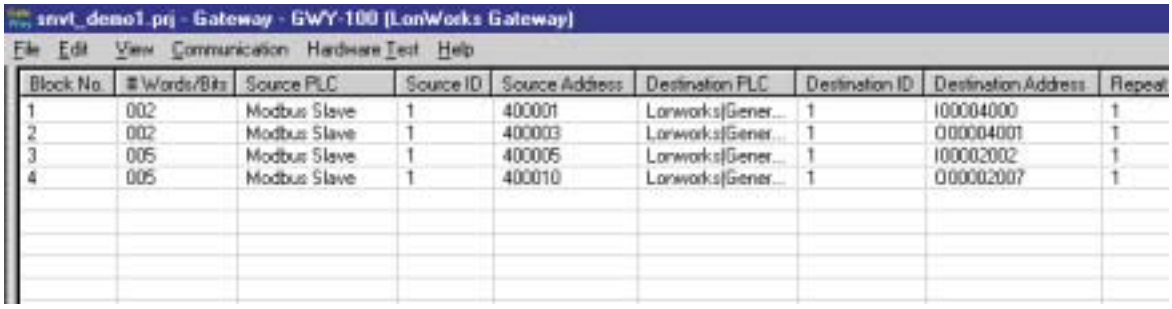
Notes:
1) Maximum 255 blocks can be configured in any mode.
2) In Master-Master configuration, typical time required to execute one block is 75 msec.

4.1.2 Master-Slave Configuration

In this mode, one of the Gateway ports is a master and other is the slave so the devices connected on these ports are slave and master respectively. Blocks do not control data transfer in this mode. Data transfer takes place only when Master Device, connected on slave port of Gateway, sends a request to read / write data. This mode requires mapping registers for data transfer. Mapping means defining one or multiple registers in the Slave Device corresponding to one or multiple registers / coils in the Master Device. Mapping can be done using the Block definition area, so in this mode, any Block is used for mapping registers of the two devices.
In Block Definition area, # Words Field indicates number of registers to be mapped **linearly** from the starting addresses of the Source Device to the Destination Device. Maximum number of registers that can be mapped is 255, but this does not mean that Master Device has to read / write 255 registers in one command.
In one command Master can read / write registers from one Block only, so if multiple registers are to be read / written using a single command, # Words also limits the maximum number of registers to be read / written. Number of registers to be read /written in one command also depends on

- protocol of BOTH the devices
- Buffer capacity of Gateway.

This configuration can be used to make Lon device function as a Modbus Slave. Configure Gateway ports as: PLC1 Protocol - Modbus Slave PLC2 Protocol - LonWorks. So the device connected on PLC1 will be a Modbus Master acting as a slave and device connected on PLC2 will be LonWorks Slave.



Block No.	# Words/Bits	Source PLC	Source ID	Source Address	Destination PLC	Destination ID	Destination Address	Repeat
1	002	Modbus Slave	1	400001	Lonworks|Gener...	1	I00004000	1
2	002	Modbus Slave	1	400003	Lonworks|Gener...	1	O00004001	1
3	005	Modbus Slave	1	400005	Lonworks|Gener...	1	I00002002	1
4	005	Modbus Slave	1	400010	Lonworks|Gener...	1	O00002007	1

For detail explanation please refer chapter 5.5.3

NOTES:

1) If multiple registers are to be read or written in one command, then all the registers have to be defined in one Block.

2) As Gateway Setup Software is common for both the Gateway Modes, titles in the Block Definition Area, may not be appropriate when using Gateway in Master - Slave mode.

3) Maximum 255 blocks can be configured in any mode.

4) In Master - slave mode, If somebody mapped read only registers at destination end to any registers at source end, it's users responsibility that these registers are not going to be written by master.

5) In Master - Master mode, before commissioning Gateway (COM2); connect slave device to COM1 side.

4.2 Repeat Cycle

User can control Block execution by using the Repeat Cycle field. This number decides whether the Block will be executed in each cycle. Larger the number lower the priority of the Block. Range for Repeat Cycle setting is 1-99.
Repeat Cycle = 1 ……. Highest priority
Repeat Cycle =99 ……Lowest priority

Repeat cycle is important when using Gateway in Master - Master mode. **If Gateway is used in Master - Slave mode, Repeat Cycle field should be kept as '1'.**

Repeat cycle defines the number of times a Block will be skipped while executing Blocks in a sequential manner. Block will not be executed for [Repeat Cycle - 1] cycles. So if Repeat Cycle for a Block is 1, it will be executed in each cycle whereas if Repeat Cycle is 2, then this Block will NOT be executed in alternate cycles.

For example, suppose Blocks are defined with following Repeat Cycles:

Block #1	Repeat Cycle = 1
Block #2	Repeat Cycle = 2
Block #3	Repeat Cycle = 3
Block #4	Repeat Cycle = 4

After power up, Cycles will be executed as follows:
Cycle 1:
Block #1
Block #2
Block #3
Block #4
Cycle 2:
Block #1
Cycle 3:
Block #1
Block #2
Cycle 4:
Block #1
Block #3
Cycle 5:
Block #1
Block #2
Block #4

4.3 Control Word

Another way of controlling Block execution is by use of the Control Word. This feature is extremely useful for small applications where less than 17 blocks are required. Control Word can be enabled or disabled in Gateway Configuration. Normally Control Word is disabled for a New project. It can be enabled just by clicking on check box in the setup software. Control Word can be chosen from any of the Devices connected.

Control Word can only be used in Master-Master mode since no continuous data transfer takes place in Master -Slave mode (data transfer only takes place on Master's request)

When the Control Word is disabled, Block execution is totally controlled by Repeat Cycle settings. When the Control Word is enabled, Block execution is controlled using discrete bits of that word.

Bit 0 in control word controls execution of Block #1
Bit 1 in control word controls execution of Block #2
:
Bit 15 in control word controls execution of Block #16

When a bit is high, '1', corresponding Block is executed depending on its Repeat Cycle. When a bit is low, '0', execution of corresponding Block is disabled.

4.4 Error Indication Bit

This feature enables detection of communication breaks during error free communication between Gateway and two devices. Communication breaks can occur due to no cable connection, wire faults, device power failure at both ends of Gateway. An Error bit can be designated in each external device connected to
Gateway. Using this bit, fault at the PLC1 end can be reported to PLC2 Device and fault at PLC2 end can be reported to PLC1 Device. When communication error occurs on PLC1, Gateway sets error bit in PLC2 device. *Error Indication Bit can only be used in Master-Master mode. In Master-Slave mode any error can easily be detected by a communication time out on the Master.*

Error indication bit can be enabled using Gateway configuration software. Normally Error bit is disabled for a New project. It can be enabled just by clicking on the check box in the setup software. Error indication bit can be enabled in both or any one of the Devices connected to Gateway. Error Indication bit is "OFF" to indicate error free communication. In case of communication error on PLC2, Gateway sets error bit on PLC1 port and vice versa.

4.5 Communication Parameters

Communication Parameters of Gateway can be set from configuration Software. This enables Gateway to readily communicate with any device. Communication parameters for PLC1 and PLC2 ports can be
configured independently. This feature allows changes in Baud rate, Number. of stop bits, Parity etc. at any time without downloading the driver for that particular device. After the driver for a particular device is
downloaded, the communication parameters can be changed simply by selecting new communication parameters and downloading the same project.

CREATING PROJECT

In this chapter. . . .

- Install Gateway Setup Software
- Install Short Stack Wizard
- Run the utility LonWorks Gateway

5.1 Install Gateway Setup Software

1 Download the installable of Gateway Setup Software from www.renuelectronics.com
2 Run Setup.exe from Disk1 folder, then Gateway Setup Software will be installed.

5.2 Install Short Stack Wizard

Installable S/W for ShortStack is available in ShortStack Installable sub folder in Gwy-100 folder (eg:C:\program files\Gateway 3.06 or later\Gwy-100(LonWorks Gateway). During initialization step through the setup wizard, entering the requested information. Enter the serial number mention below ,when prompted for a serial number.**Serial No for ShortStack S/w installation - 0213A75-00001** When the Ready to Install the Program window appears, click **Install** When the InstallShield Wizard Completed window appears, click **Finish** to quit the setup application.

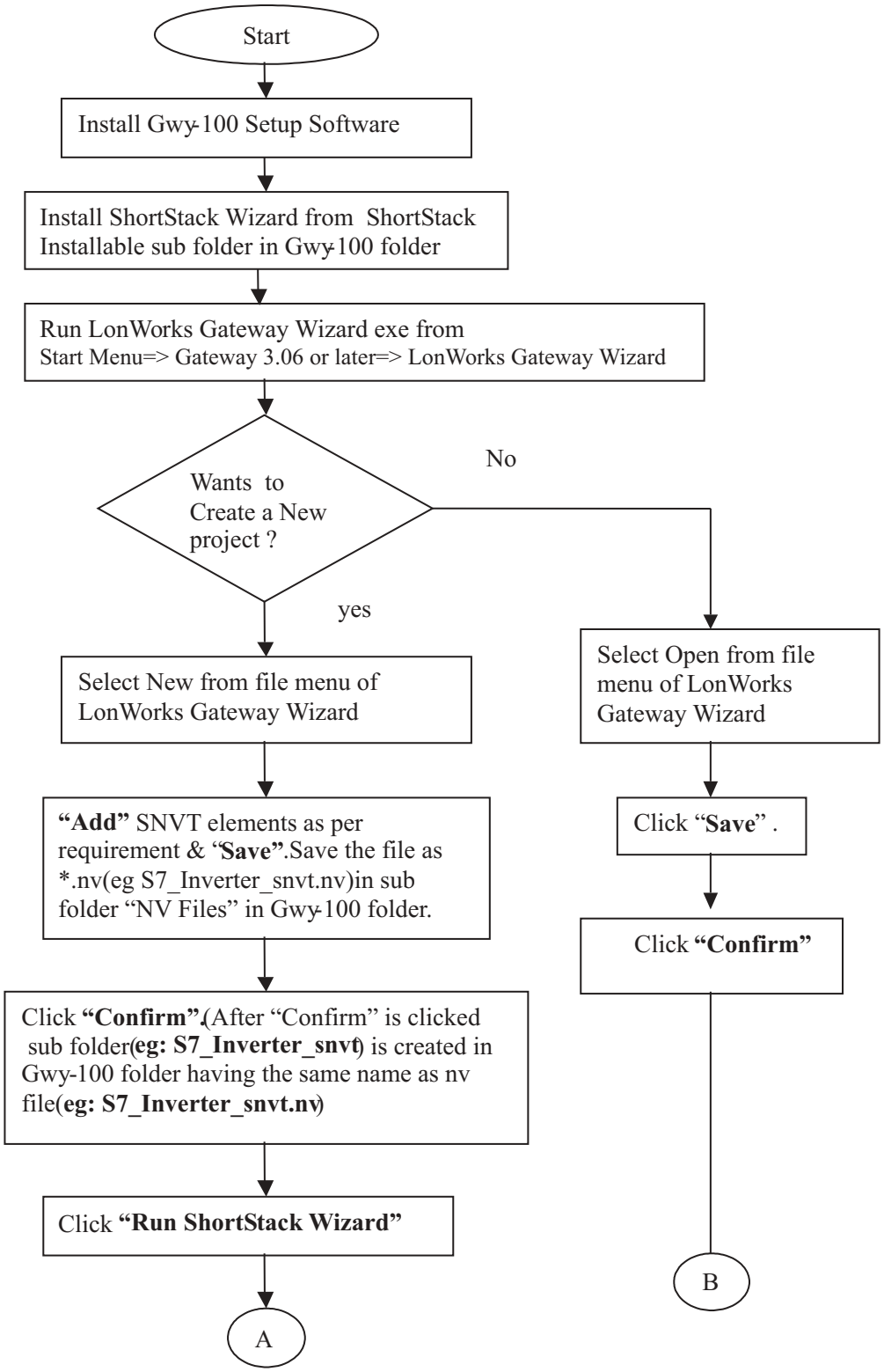
5.3 Run the utility LonWorks Gateway

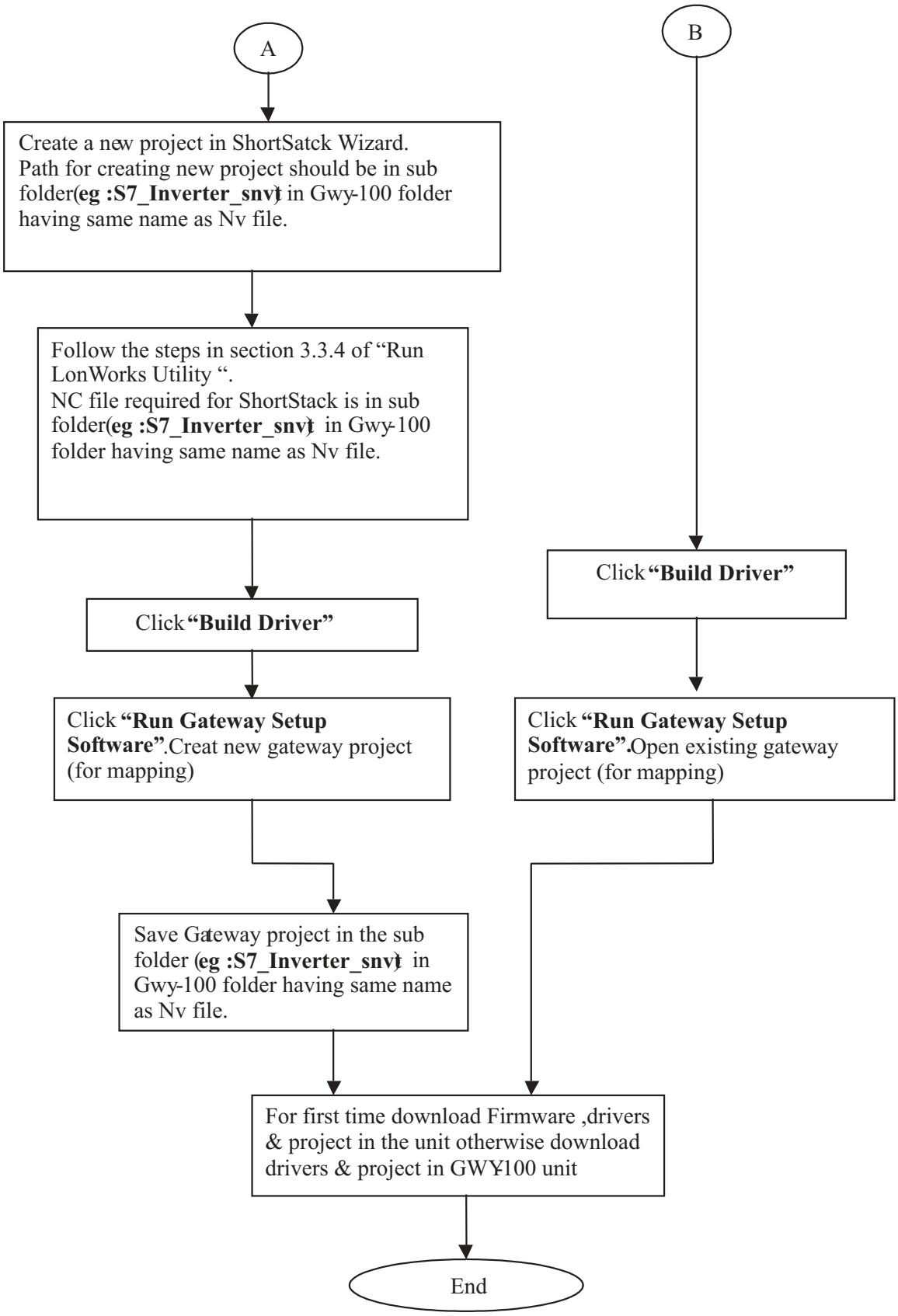
5.3.1 Purpose of Using LonWorks Gateway Utility

The utility Lonworks Gateway contains the GUI for SNVT configuration.The main purpose of running this utility is to modify the Lonworks driver for Gateway according to the application.In Gwy-00/other gateway series,driver used is fixed and not application dependent.Driver file is modified only when there is upgradation or any change in the driver.In Gwy-100 for SNVTs ,LonWorks driver file get modified according to application of user. when user create a new application,for each application driver file is modified.
SNVTs have fixed format which is decided by Echelon. Echelon provides list of these SNVTs.
Currently Standard Network Variable list contains 164 SNVTs. But the Shortstack software allows only 62 network variables.So LonWorks Gateway Utility allows user to select less than or equal to 62 network variables(which is acceptable for most of the applications) out of 164 variables, according to the user defination.
UNVTs have varying format and it depends upon the customer's requirement. So to create an application containing the UNVTs contact factory.

5.3.2 Flowchart Steps for configuring GWY-100-B(LonWorks Gateway)

Steps for configuring the Gwy-100-B(LonWorks Gateway), for Echelon LonWorks SNVT(Standard Network Variable Types)


Start
Install Gwy-100 Setup Software
Install ShortStack Wizard from ShortStack Installable sub folder in Gwy-100 folder
Run LonWorks Gateway Wizard exe from Start Menu=> Gateway 3.06 or later=> LonWorks Gateway Wizard
Wants to Create a New project ?
No
yes
Select New from file menu of LonWorks Gateway Wizard
"Add" SNVT elements as per requirement & "Save".Save the file as *.nv(eg S7_Inverter_snvt.nv)in sub folder "NV Files" in Gwy-100 folder.
Click "Confirm".(After "Confirm" is clicked sub folder(eg: S7_Inverter_snvt) is created in Gwy-100 folder having the same name as nv file(eg: S7_Inverter_snvt.nv)
Click "Run ShortStack Wizard"
A
Select Open from file menu of LonWorks Gateway Wizard
Click "Save" .
Click "Confirm"
B


A
B
Create a new project in ShortSatck Wizard.
Path for creating new project should be in sub folder(eg :S7_Inverter_snvt) in Gwy-100 folder having same name as Nv file.
Follow the steps in section 3.3.4 of "Run LonWorks Utility ".
NC file required for ShortStack is in sub folder(eg :S7_Inverter_snvt) in Gwy-100 folder having same name as Nv file.
Click "Build Driver"
Click "Build Driver"
Click "Run Gateway Setup Software".Creat new gateway project (for mapping)
Click "Run Gateway Setup Software".Open existing gateway project (for mapping)
Save Gateway project in the sub folder (eg :S7_Inverter_snvt) in Gwy-100 folder having same name as Nv file.
For first time download Firmware ,drivers & project in the unit otherwise download drivers & project in GWY100 unit
End

5.3.3 Create A New Project

Run the **"LonWorks Gateway Wizard"** from start menu.

1 User will select the network variables from the provided list of SNVT.Input/output will be decided by user. Only **"Add"** button is enabled at start.When the network variable is added in the Selected network variable list,**"Save"** button is enabled.User should save the file as ***.nv(eg :S7_Inverter_snvt.nv)**(Recommended – save file in sub-folder NV files in GWY-100 folder on .....\Gateway 3.06 or later\Gwy-100(LonWorks Gateway)

Limitations :User should add atleast 2 variables of different type.

2 AS per the selection Input/Output, selected SNVT is added as Input SNVT or Output SNVT in the Selected network variables list. User can delete the added element using the **"Delete"** button.After saving the file as *.nv ,all the remaining button gets enabled. When addition of SNVT is finished ,user should click the **"Confirm"** button.User can select same type of variables using array of that variable. e.g :if user wants 20 variables of input type SNVT_switch Then select SNVT_switch from the list, select Input and specify the variable name as alarm[20] or xxx[20]i.e to add 20 variables, first name of variable (in this case-alarm or xxx) can be anything but [20] is mandatory.For having 30 variables of same type specify variable name as yyy[30] User can also define each variable independently.

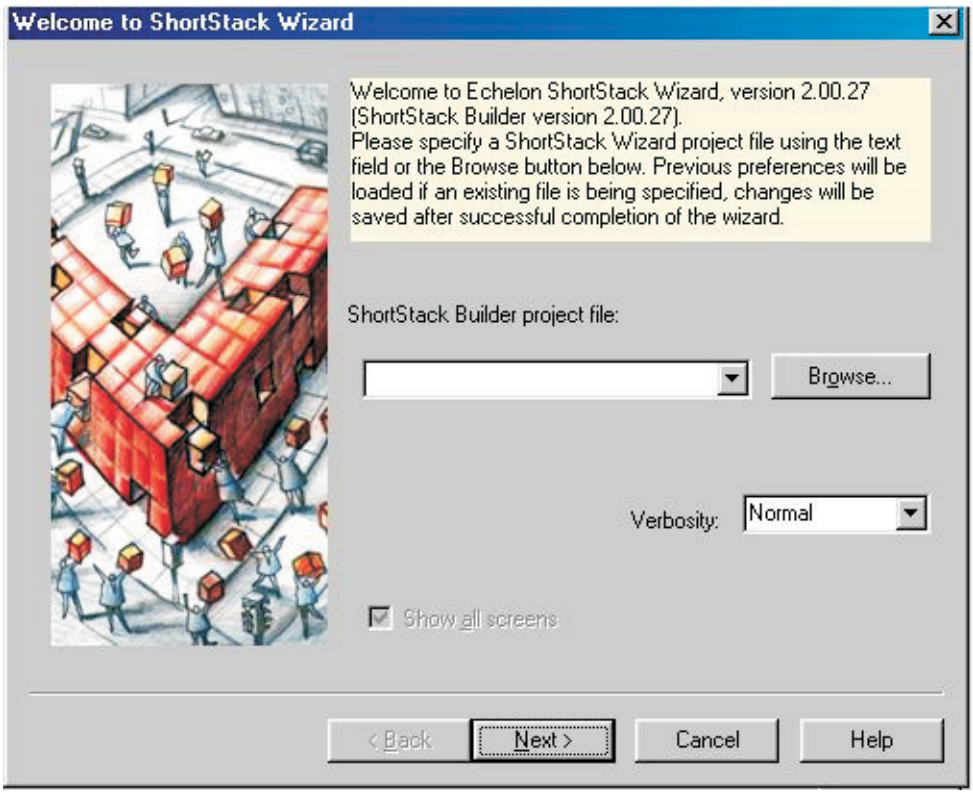
Limitations: Maximum 62 SNVTs can be added in the selected network variable list.

3 When user click **"Confirm"**, a new folder**(eg:S7_Inverter_snvt)** is created in the Gwy-100 folder,with the same name as Nv file **(eg:S7_Inverter_snvt.nv) NC file(eg:S7_Inverter_snvt.nc) which is input for ShortStack will be created in newly created folder (eg:S7_Inverter_snvt) .Appendix A:**GWY-100 folder contains files myheader.h ,float.h **A. Myheader.h –**Myheader.h includes float.h and S32.h by default. e.g: if user used the float type SNVT then float.h should be included & for quad type s32.h is includedin the myheader.h file otherwise ShortStack will give the error.So default float.h & s32.h are included in the Myheader.h.If user want to include such files(float.h),required for nc file, then include thatfile in the Myheader.h file same as float.h is included and also copy the same header file in Gwy-100 folder.

4 Run the ShortStack Wizard –Click on the **"Run ShortStack Wizard"** button. Following window appears.**Steps to be followed :**

[I]. Browse the folder**(eg: S7_Inverter_snvt)** which is created with the same name as nv file in the Gwy-100 folder.Enter name as "*.swprj"(Recommended but not mandatory = > same name as nv file name i.e **S7_Inverter_snvt.swprj**) and then click open. Shortstack will create new project **(eg : S7_Inverter_snvt.swprj)**in the **(eg:S7_Inverter_snvt)** folder.

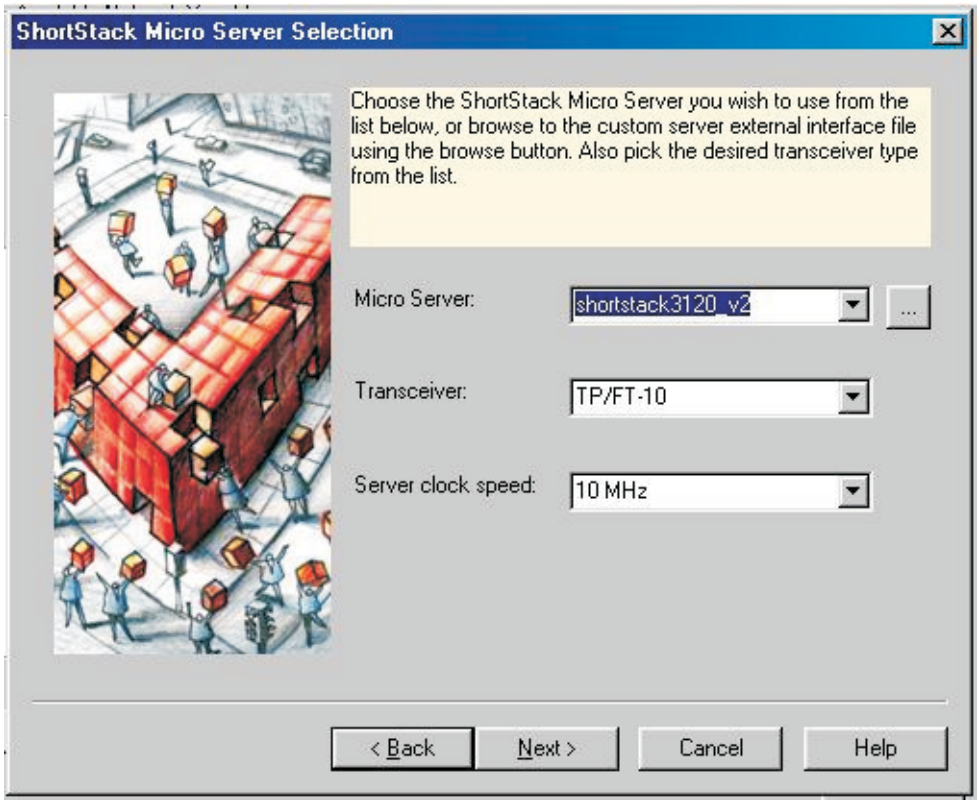
Note : User should create the ShortStack project in the folder(eg:S7_Inverter_snvt i.e with NV file name which is currently created by user)S7_Inverter_snvt is created in Gwy-100 when "Confirm" button is click.


Welcome to ShortStack Wizard
Welcome to Echelon ShortStack Wizard, version 2.00.27 (ShortStack Builder version 2.00.27).
Please specify a ShortStack Wizard project file using the text field or the Browse button below. Previous preferences will be loaded if an existing file is being specified, changes will be saved after successful completion of the wizard.
ShortStack Builder project file:
Browse...
Verbosity:
Normal
Show all screens
< Back
Next >
Cancel
Help

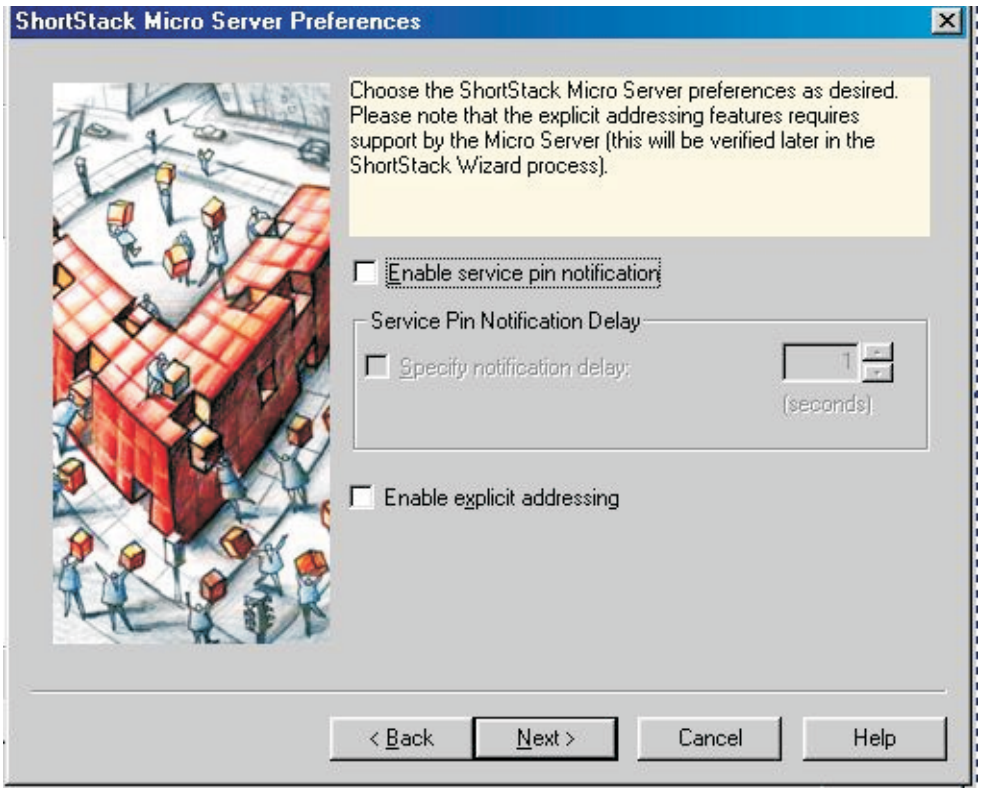
II]. After creating new project in the specified folder(eg:Gwy-100/ **S7_Inverter_snvt**). Click **Next**. Next window will appear as follows. Select the options as shown in the image.

Micro Server => **shortstack3120_v2**
Transceiver => **TP/FT-10**
Server clock speed => **10MHz**

Click on the Next after selecting the above options

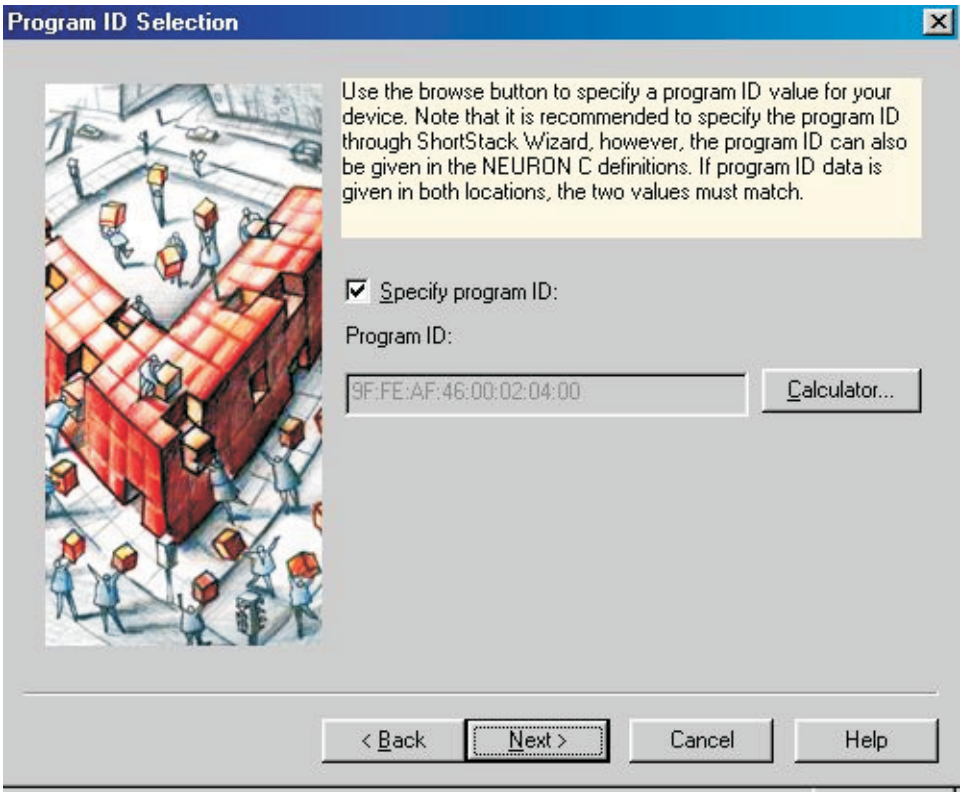

ShortStack Micro Server Selection
Choose the ShortStack Micro Server you wish to use from the list below, or browse to the custom server external interface file using the browse button. Also pick the desired transceiver type from the list.
Micro Server:
shortstack3120_v2
...
Transceiver:
TP/FT-10
Server clock speed:
10 MHz
< Back
Next >
Cancel
Help

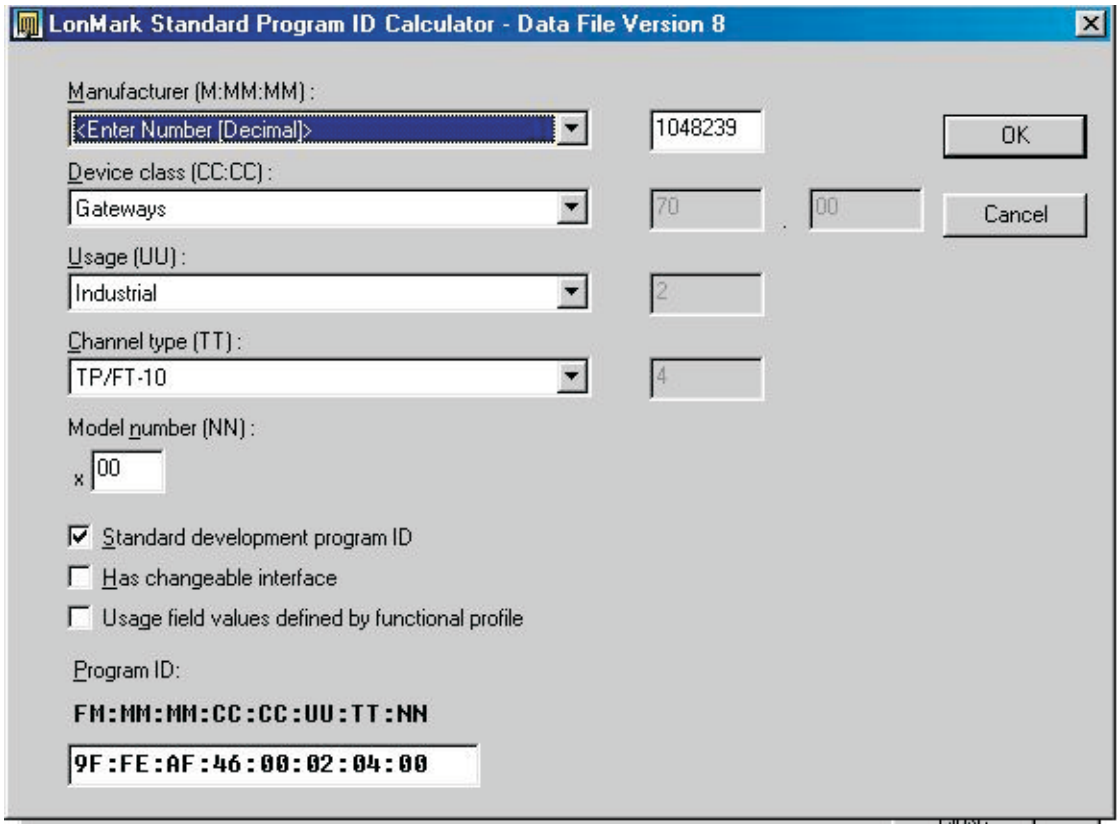
[III] Do Not select any preferences. Click on the Next.


ShortStack Micro Server Preferences
Choose the ShortStack Micro Server preferences as desired. Please note that the explicit addressing features requires support by the Micro Server (this will be verified later in the ShortStack Wizard process).
Enable service pin notification
Service Pin Notification Delay
Specify notification delay:
1
(seconds)
Enable explicit addressing
< Back
Next >
Cancel
Help

[IV]. Click on calculator.Select the data as given below Manufacturer

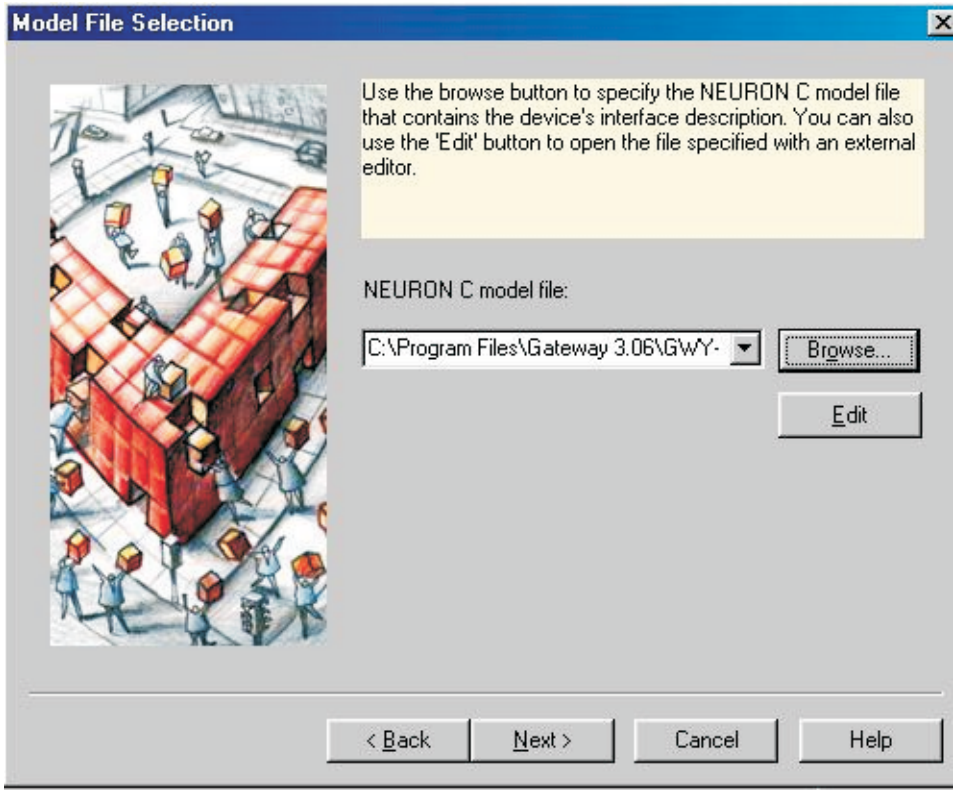
(M:MM:MM) **– (Enter decimal number) – 1048239**
Device class (CC:CC) – **Gateways(70)**
Usage(UU) – **Industrial(02)**
Channel type(TT) – **TP/FT-10(04)**
Model number(NN) can be selected as **00,01…**


Program ID Selection
Use the browse button to specify a program ID value for your device. Note that it is recommended to specify the program ID through ShortStack Wizard, however, the program ID can also be given in the NEURON C definitions. If program ID data is given in both locations, the two values must match.
Specify program ID:
Program ID:
9F:FE:AF:46:00:02:04:00
Calculator...
< Back
Next >
Cancel
Help


LonMark Standard Program ID Calculator - Data File Version 8
Manufacturer (M:MM:MM) :
<Enter Number [Decimal]>
1048239
OK
Device class (CC:CC) :
Gateways
70
00
Cancel
Usage (UU) :
Industrial
2
Channel type (TT) :
TP/FT-10
4
Model number (NN) :
x 00
Standard development program ID
Has changeable interface
Usage field values defined by functional profile
Program ID:
FM:MM:MM:CC:CC:UU:TT:NN
9F:FE:AF:46:00:02:04:00

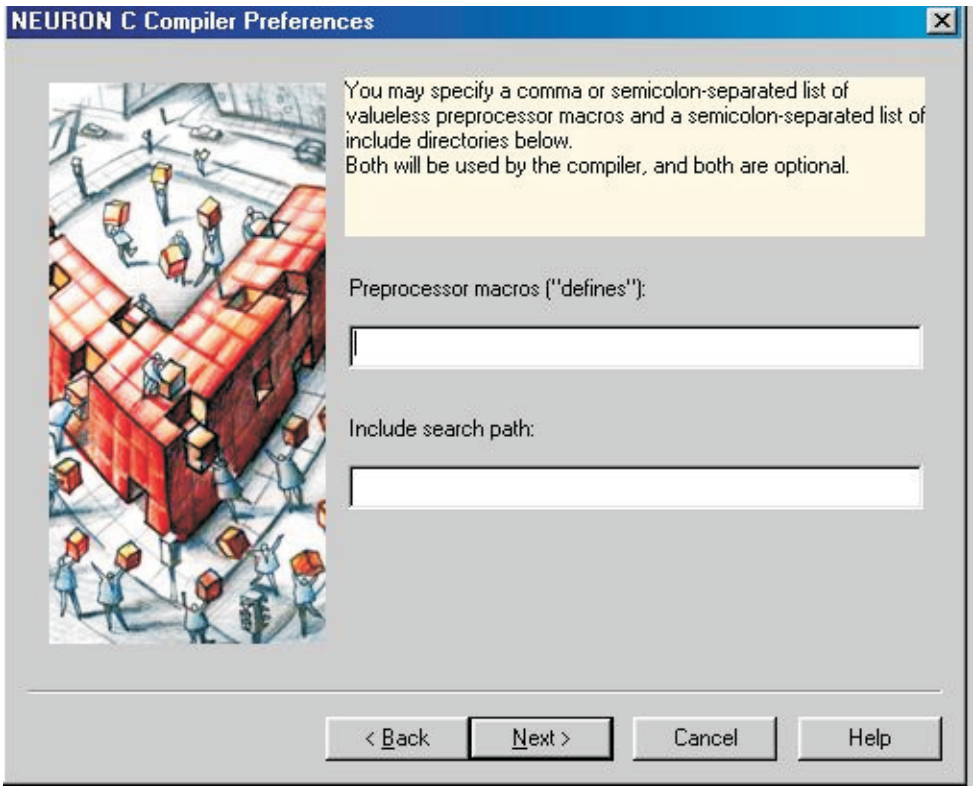
Click on Next after Program id selection

[V]. Browse the neuron c model file which is generated in the respective folder (eg:….Gwy-100/S7_Inverter_snvt/S7_Inverter_snvt.nc)


Model File Selection
Use the browse button to specify the NEURON C model file that contains the device's interface description. You can also use the 'Edit' button to open the file specified with an external editor.
NEURON C model file:
C:\Program Files\Gateway 3.06\GWY-
Browse...
Edit
< Back
Next >
Cancel
Help

click on Next.

[VI]. Do not enter anything.


NEURON C Compiler Preferences
You may specify a comma or semicolon-separated list of valueless preprocessor macros and a semicolon-separated list of include directories below.
Both will be used by the compiler, and both are optional.
Preprocessor macros ("defines"):
Include search path:
< Back
Next >
Cancel
Help

Click on Next button till last window appears. It shows 2/3 warnings. click on “Done”
Create Gateway project: After gone through ShortStack wizard, click **“Build Driver”** button.
After succesful completion,**‘Driver build is complete as per Defined network variable’** message will appear,

Now click **“Run Gateway Setup Software”**
Select Gwy-100(Lonworks Gateway) from the product List.

Select Com1 and Com2 driver and click on Configure. Click on Plc1 settings for baud rate.
Map the SNVT variables as per requirement.

For Example:
User added

1. SNVT_switch as input variable with name Sw_ip1.
2. SNVT_switch as output variable with name Sw_op1.
3. SNVT_alarm as input variable with name alarm1[20]

alarm1 is an array of 20 variables of type SNVT_alarm .

nviSw_ip1 is with index 0(**I**00**002***000*)
nvoSw_op1 is with index 1(**O**00**002***001*)
nviAlarm1[20] is with index 2 through 21(**I**00**029***002* - **I**00**029***021*)

I – indicates input ,nxt 2 bytes reserved,**002** – length in bytes for the corresponding index,last three bits represent the index number. **For Index Number please refer the note given below.**

Select the no. of words according to length(in bytes) of index.Suppose user want to map nviSw_ip1 to 400001(Modbus side) then select no. of words – 1 and map 40001 to I00002000(nviSw_ip1)
If user want to map in single column i.e if mapping is 40001 to I00002000(index 0) ,No of words – 100 then the data shown in the modbus register is

index 0(I 00 002 000) - 2bytes(1 word)
index 1 (I 00 002 001)- 2 bytes(1 word)
alarm1_1 (O 00 029 002)– 29 bytes
alarm1_2 (O 00 029 003) – 29 bytes….
Go on adding all the bytes till you get (2+2+29+29+29+29+29+29+ first 22 bytes of the SNVT_alarm) 200 bytes(100 words)

This much data is mapped accordingly.

Note: User should create gateway project (mandatory) in the same folder (e.g:S7_Inverter_snvt)

Download the Firmware,drivers and project in the Gateway unit.
For Lonmaker use the **xif file**, which generated in the corrsponding folder(S7_Inverter_snvt).

Note:Index Number

The network variables are selected from the list in Lonworks wizard ,by the user.
When the network variable is added ,1st network variable that is added is given index number 0,second as 1….and so on.
If an array of size 10 is added after two NVs,then index numbers are assigned from 2 To 11.

Significance of index number is in which order the Network variables are selected by the user.
user will understand sequence of NV & using this he understands the mapping of other side registers .

For eg:
Let us assume user select 3 NVs having length of each NV 2 bytes 1 word.
A gateway project is made 40001 map with NV having index number 0 and length of Nv id 2 byte, NO OF WORDS - 3
Then in this case 40001 only contains the NV with index number 0 then 40002 contains next NV index number1 that is onwords. Thus user come to know which NV is mapped with which register or
The value in the registers from other side corresponds to which NV value.

5.4 Open Exsting Gateway Project

Run the “LonWorks Gateway Wizard” from start menu,open the corresponding NV fileClick “Save”, then “Confirm” and then click “Build Driver”Click “Run Gateway Setup software”.

Note: No need to go through the step “Run ShortStack Wizard”,as the xif file (corresponding to nv file) required for Lonmaker, is already created

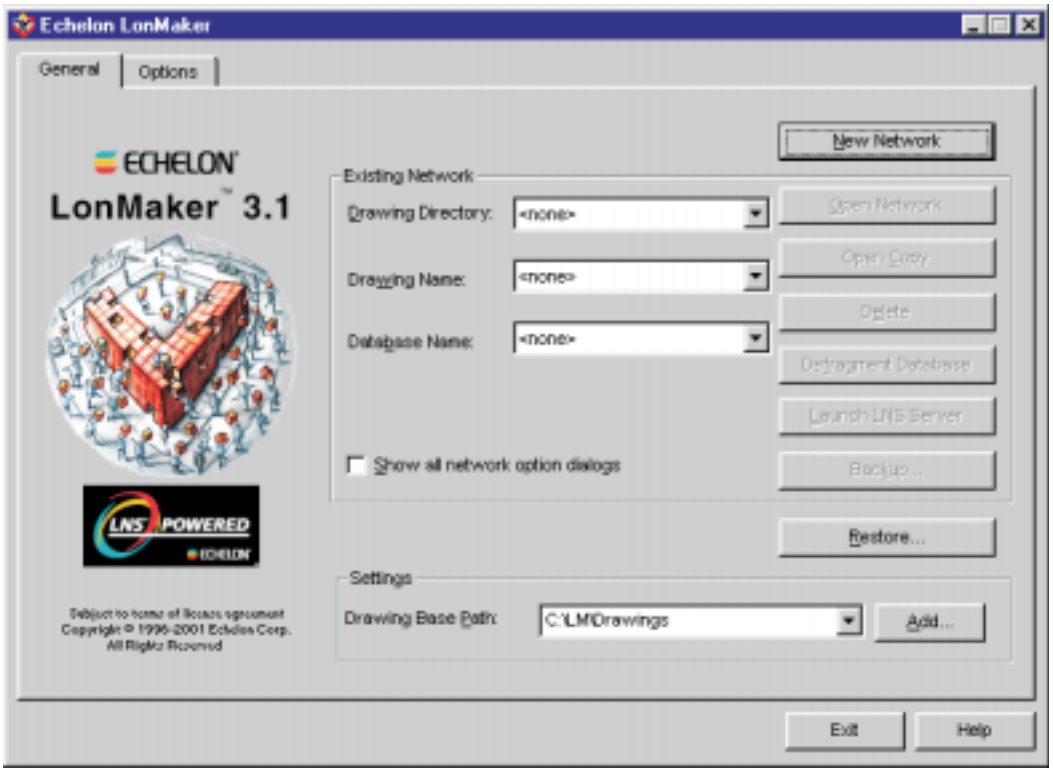
5.5 Create Template using LonMaker

To create Lon project using LonMaker, network management tool follow the steps :

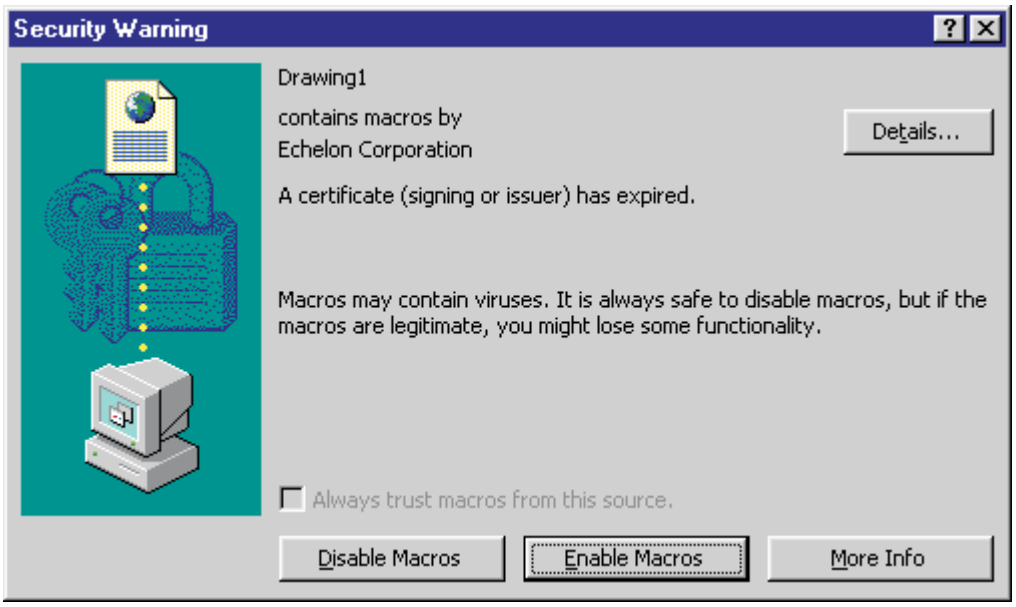
1.Click on LonMaker for Windows (Start => Programs=> LonMaker for Windows.)

5.5.1 To create a New Network:

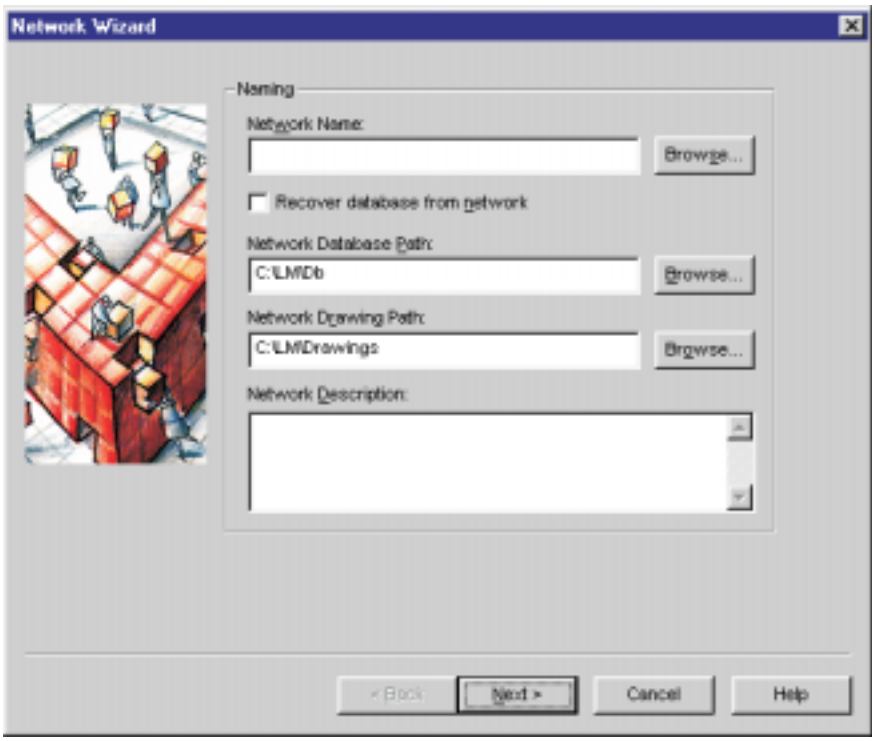
1. After the LonMaker window opens, click on **New Network**.



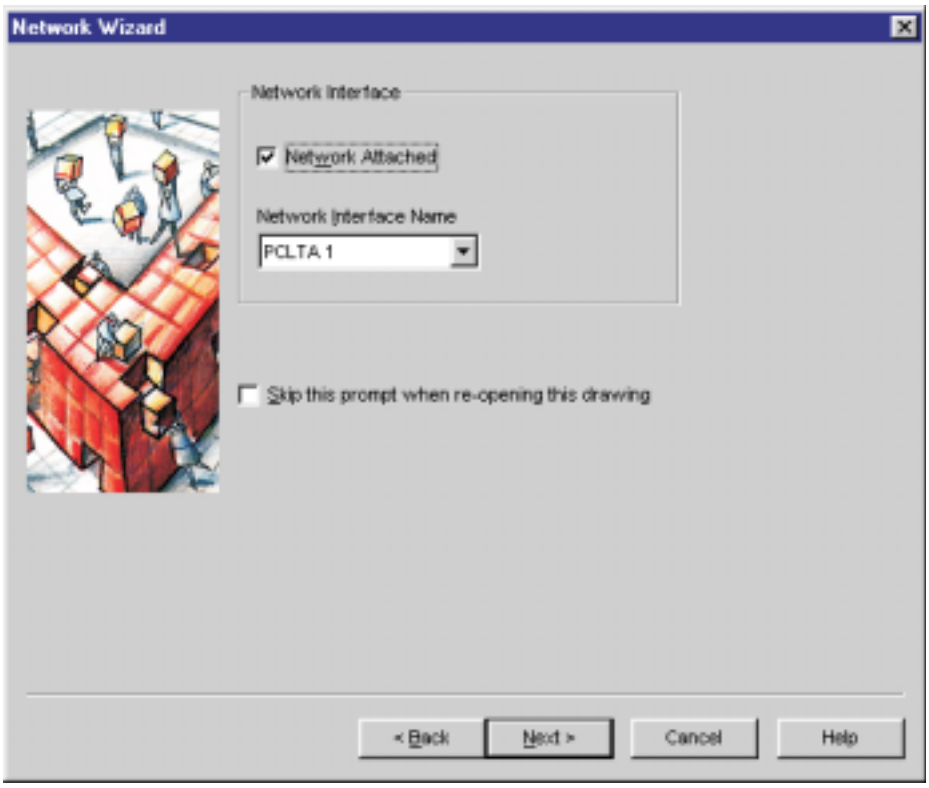
2. Then click on Enable Macros.


Security Warning
Drawing1
contains macros by
Echelon Corporation
Details...
A certificate (signing or issuer) has expired.
Macros may contain viruses. It is always safe to disable macros, but if the macros are legitimate, you might lose some functionality.
Always trust macros from this source.
Disable Macros
Enable Macros
More Info

3. Enter the name of Network in the Network Name Field, Click on Next.



4.Select Network Attach. Click Next.



5.Select Onnet or Offnet .

OffNet :

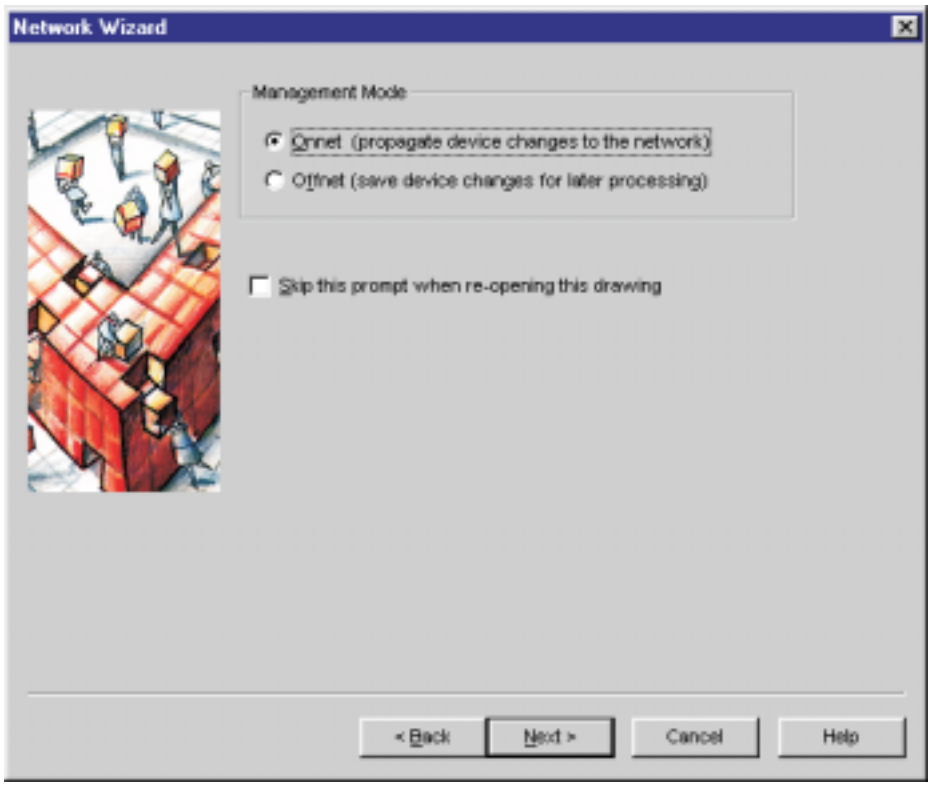
When a LNS network design is unattached to a physical network or attached and the management mode is set to OffNet, changes to application and network configuration properties are saved in the database and propagated across the network. After being OnNet, network variables, such as temperature or enable/disable, can be changed on the network while working in OffNet mode (after devices have been commissioned and functional blocks added, connected, and configured).

OnNet :

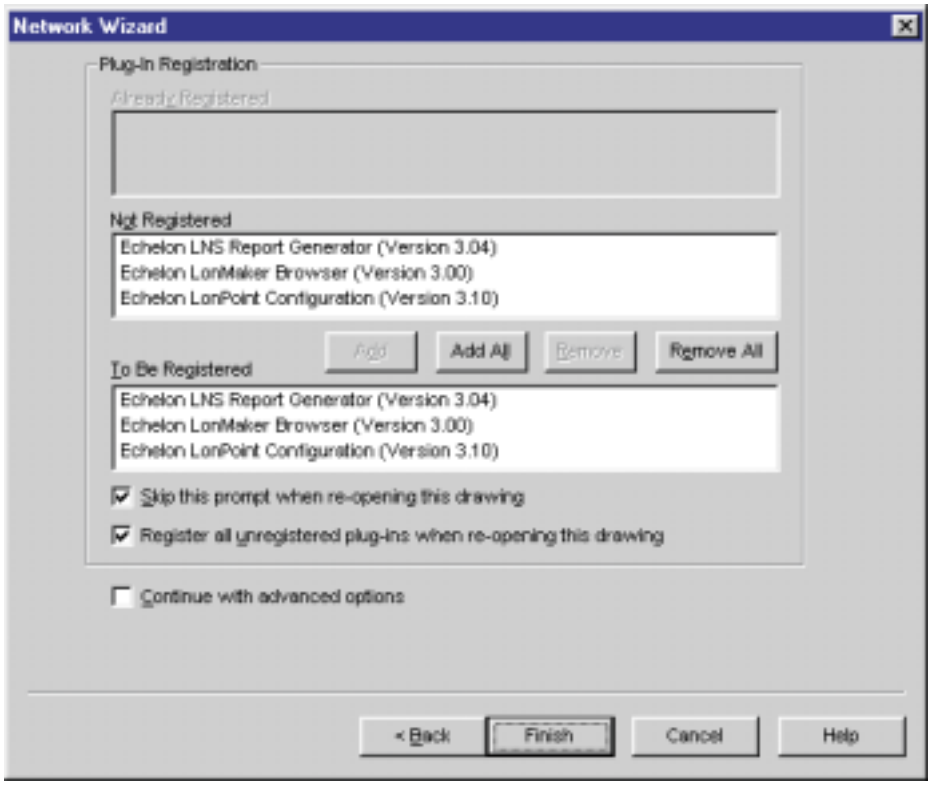
When a LNS network design is attached to a network and the management mode is set to OnNet, any changes made are propagated across the network immediately (after devices have been commissioned or functional blocks added, connected, or configured).

When working OnNet, the LNS Server interacts with the physical network and changes devices as the devices are changed in the network management tool. When working OffNet, the LNS Server can browse and test the devices on the physical network, but it will not make changes to the configuration of any devices.

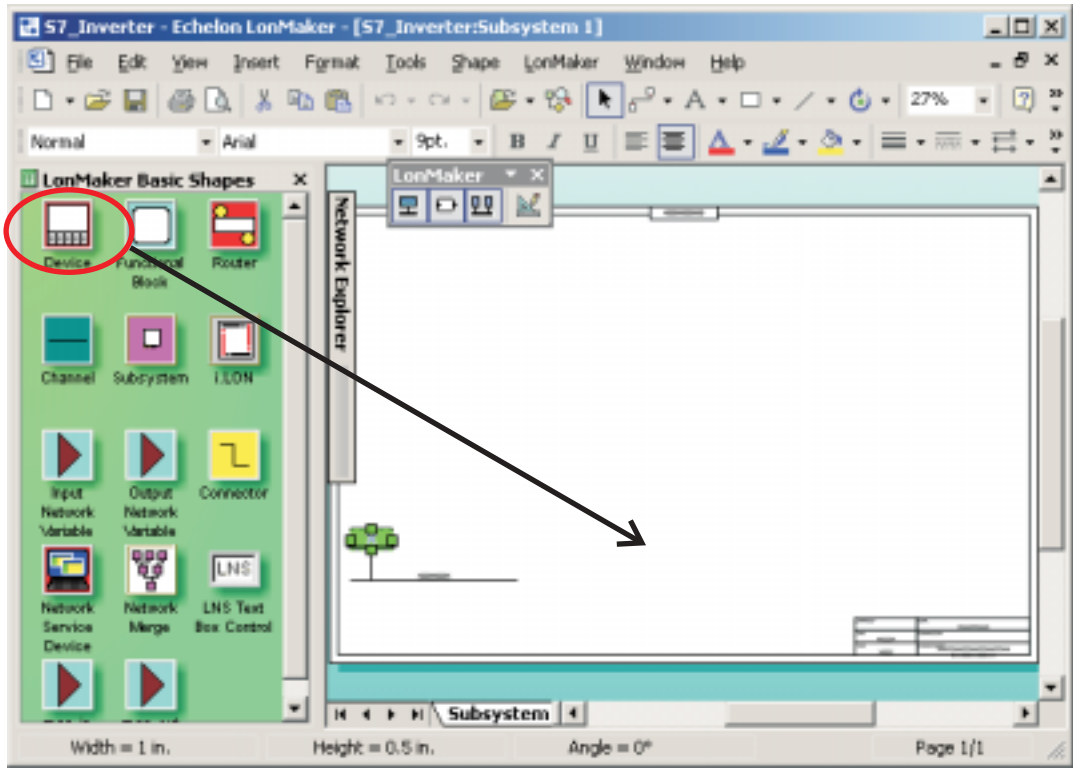
Click Next.



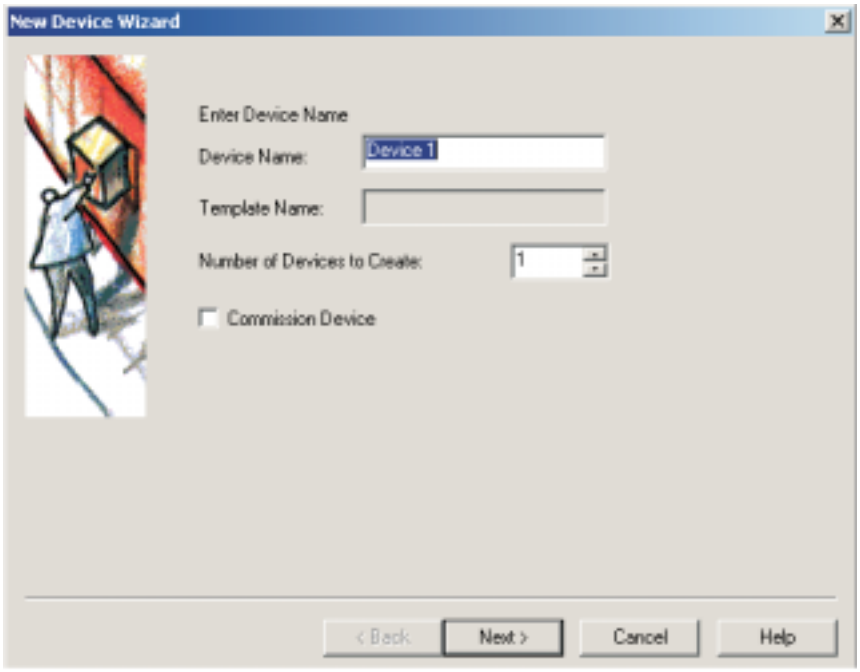
6.Click “Finish”



7. Drag a “Device” from Lonworks Basic Shapes stencil into Visio Drawing.

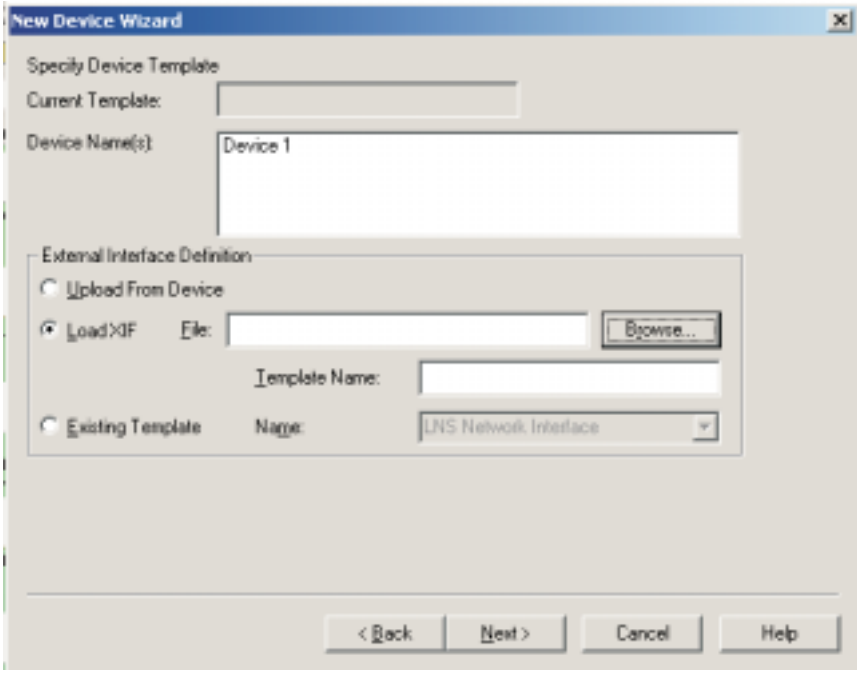


8. Enter the name for device.



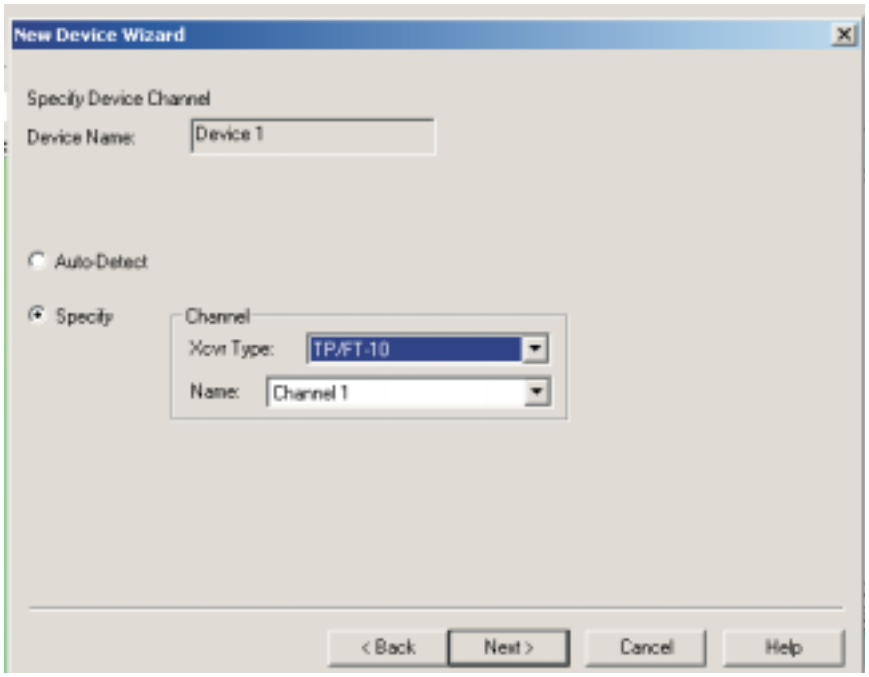
You can either select ‘Commission Device’ if the device is attached to the network and network is ‘Onnet’ or you can select this option later also(as explained further).

Click Next. Select ‘Load XIF’ option. Browse the corresponding xif file for the device & enter Template Name.

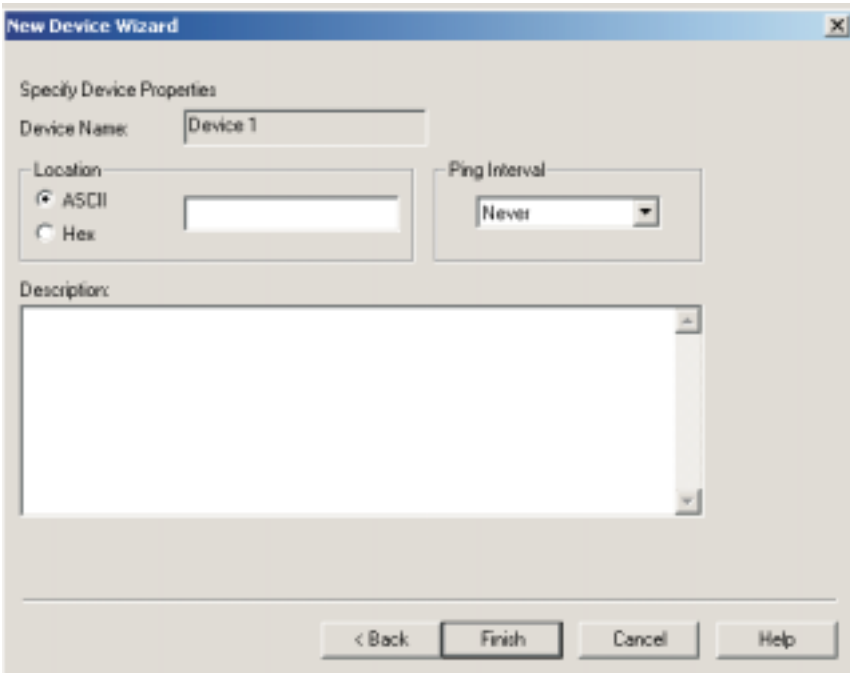


Then Click Next.

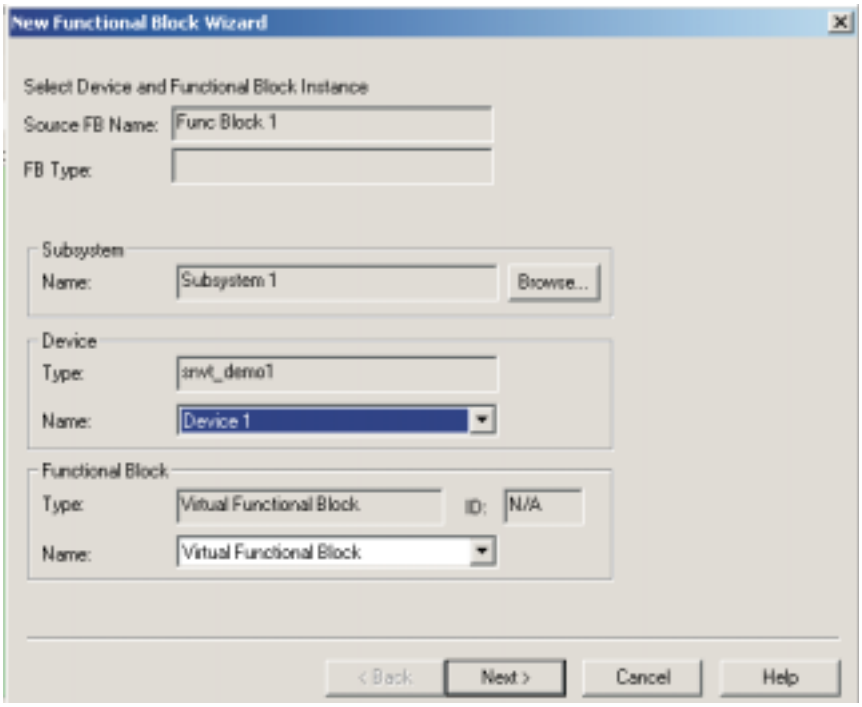
10. Select ‘Specify/Auto detect’. If you select ‘Specify’, enter Xcvr-Type as TP/FT-10.



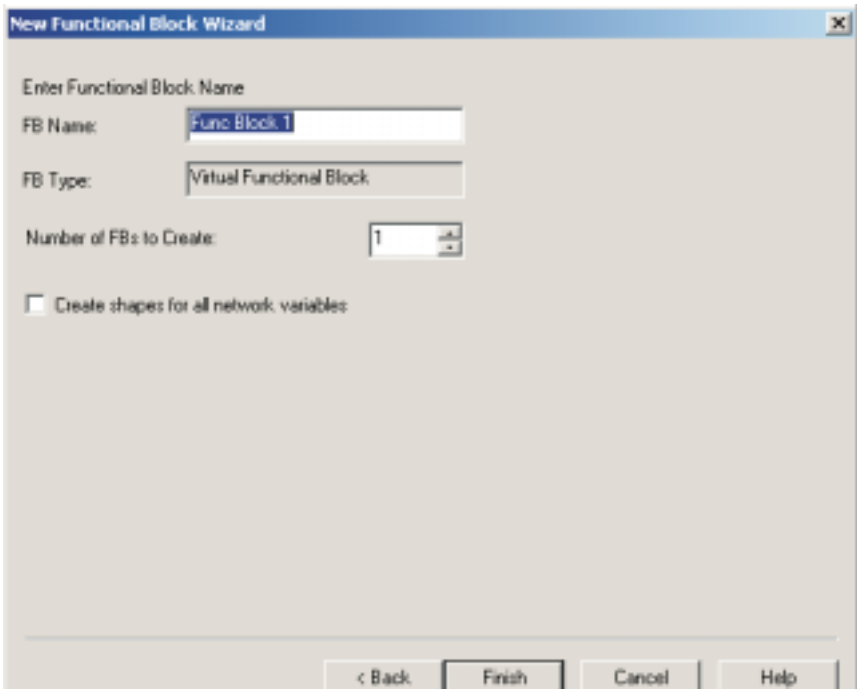
11 Click Next.
12. Click Finish
Thus a device is dragged on the network.



13.Now drag the Functional block on Visio drawing. Leave the first menu as is “Virtual Functional Block” selected. Click on Next.



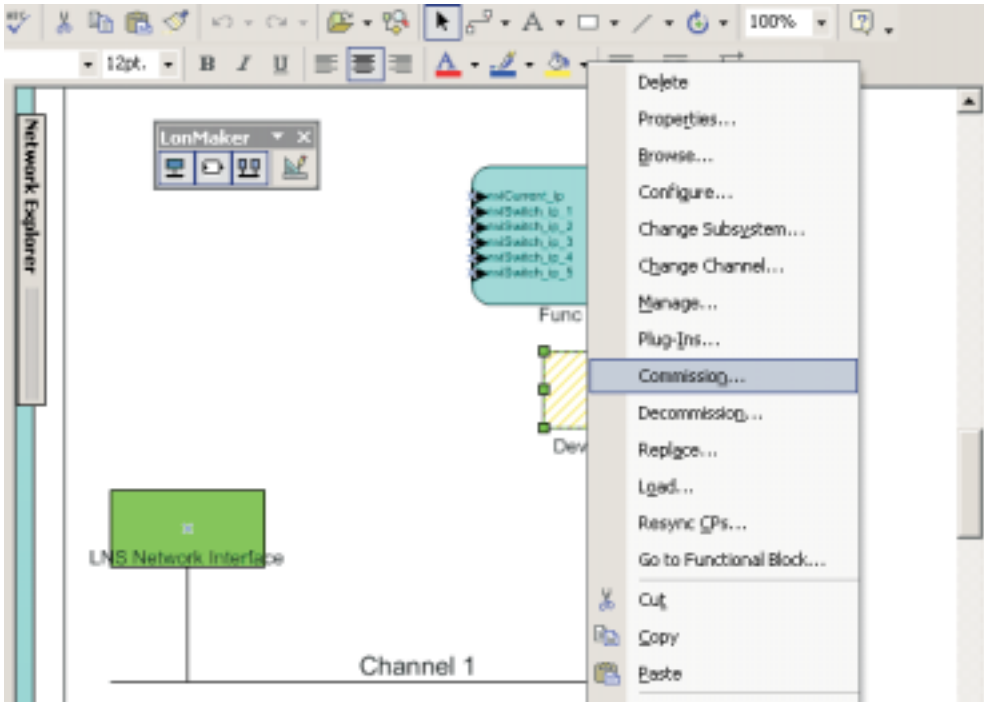
14. Give thr FB Name. Click on Finish.



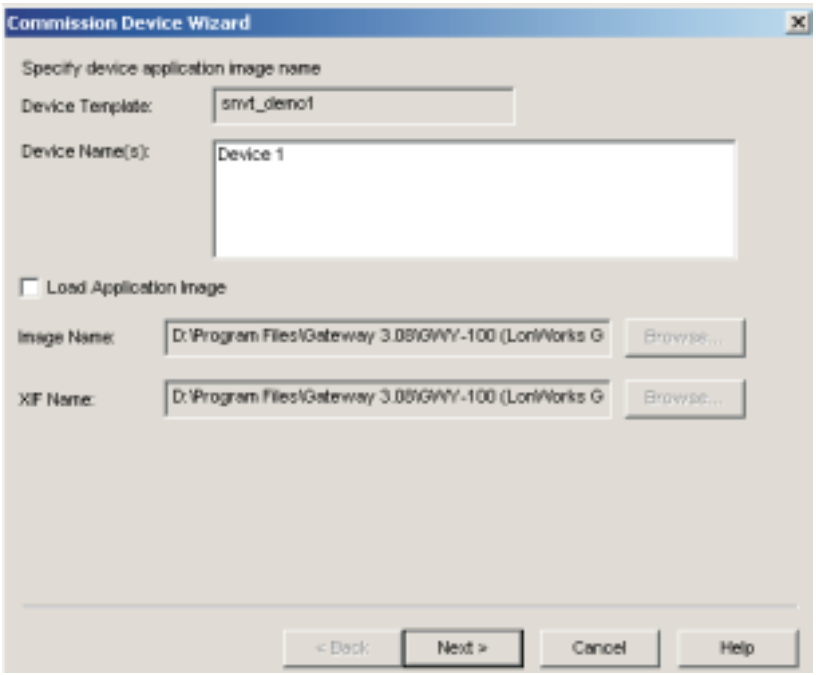
Then drag input network variable and output network variable on functional block.
The Input Network variable and output network variables seen depend on the xif file that you have selected.

15. Commissioning the Device

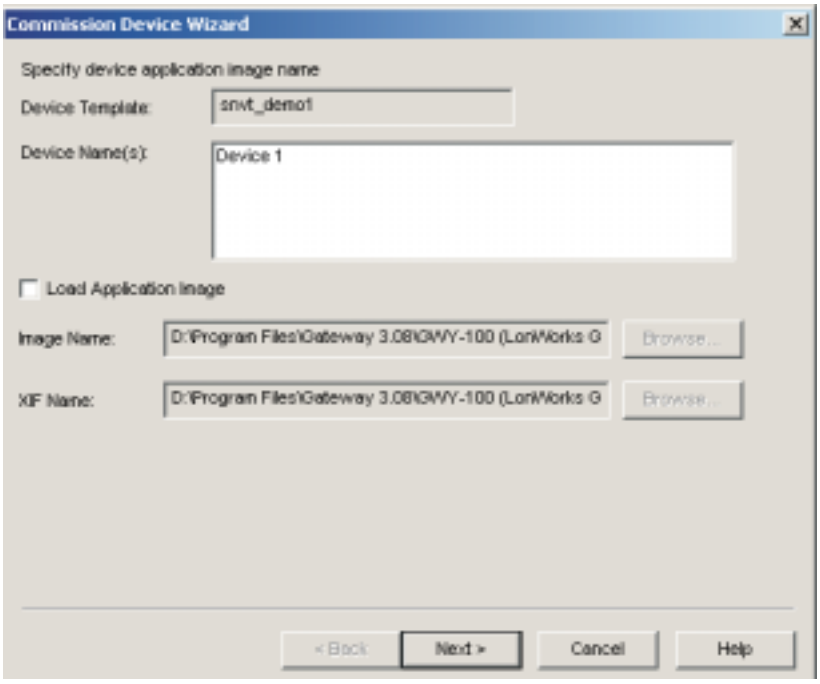
You can commission the device by right clicking on the device.

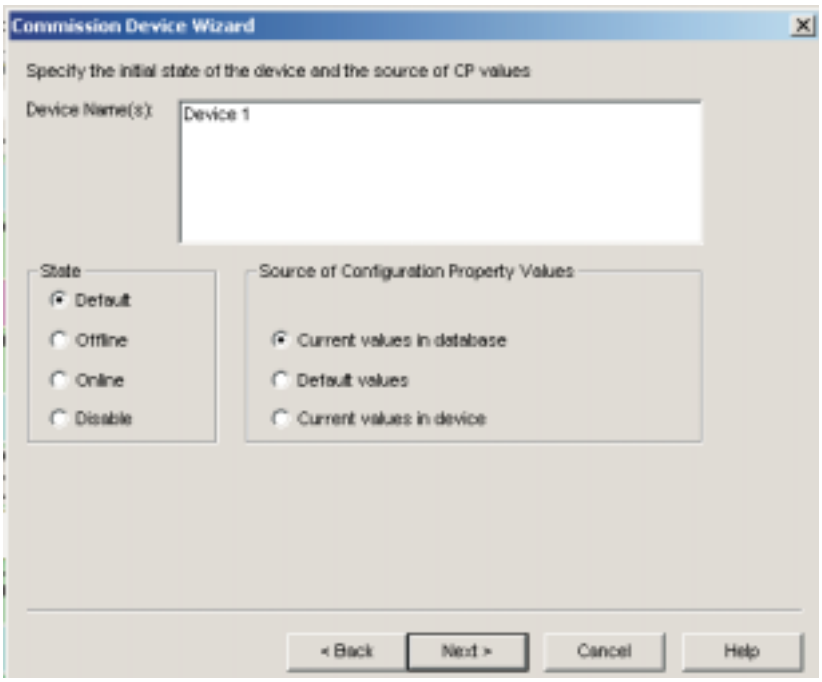


Donot select option 'Load application image file' while commissioning the device.

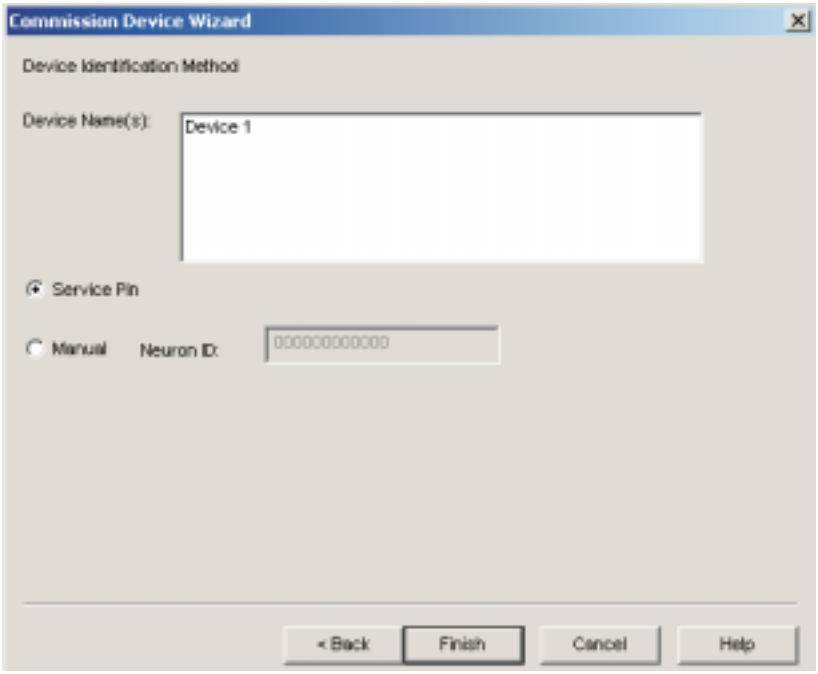


16. Click on Next till last window and then click Finish.

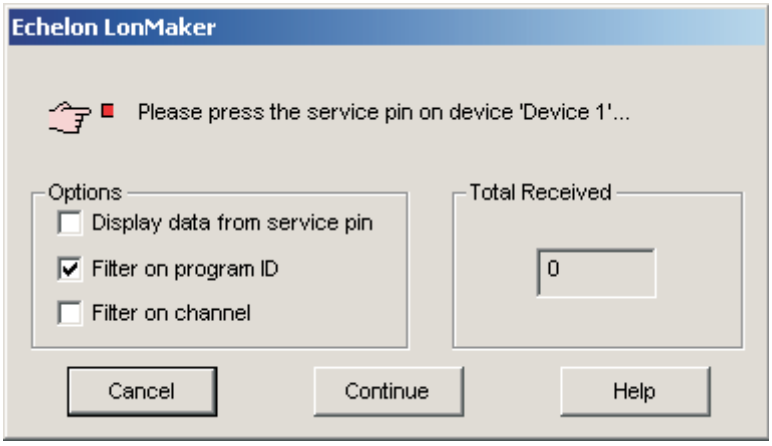




17. Click Finish

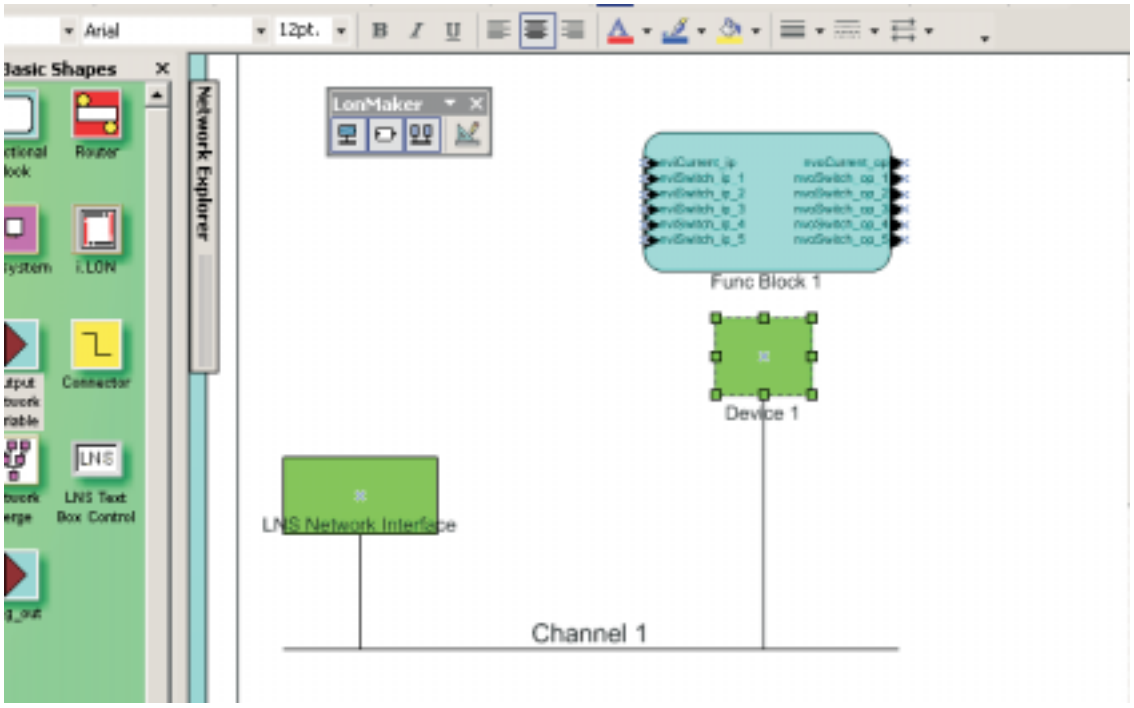


18. Press the Service(SVC) push button on the GWY-100-B unit when LonMaker asks for Service Pin.



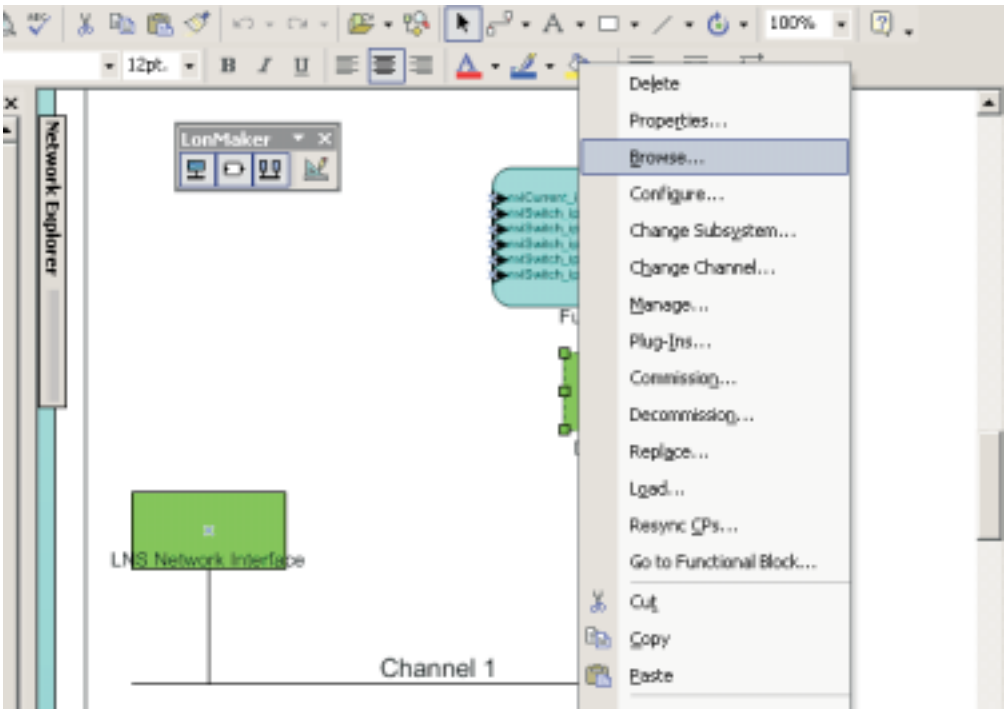
Note: Unit must not be in IBM Download mode while commissioning.

The device is commissioned and the service(SVC) Led is OFF.
You are now readt to bind to other devices using “Connector” tool.

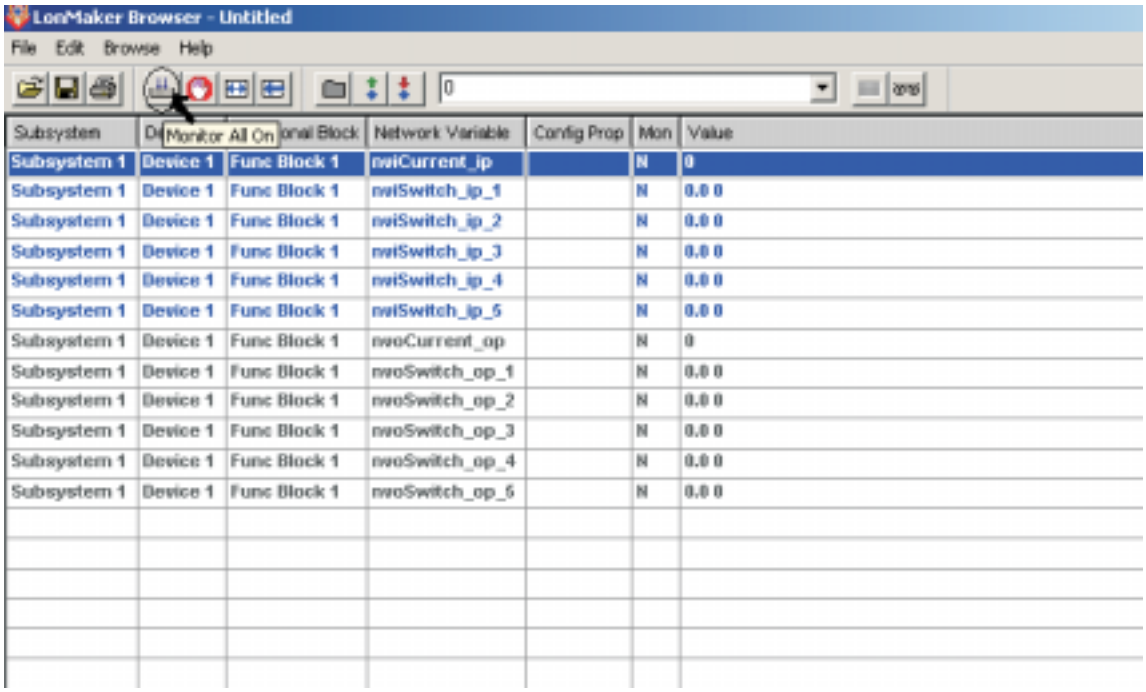


19 Monitoring of Network Variables

User can monitor network variables by right clicking on 'Commissioned device'.

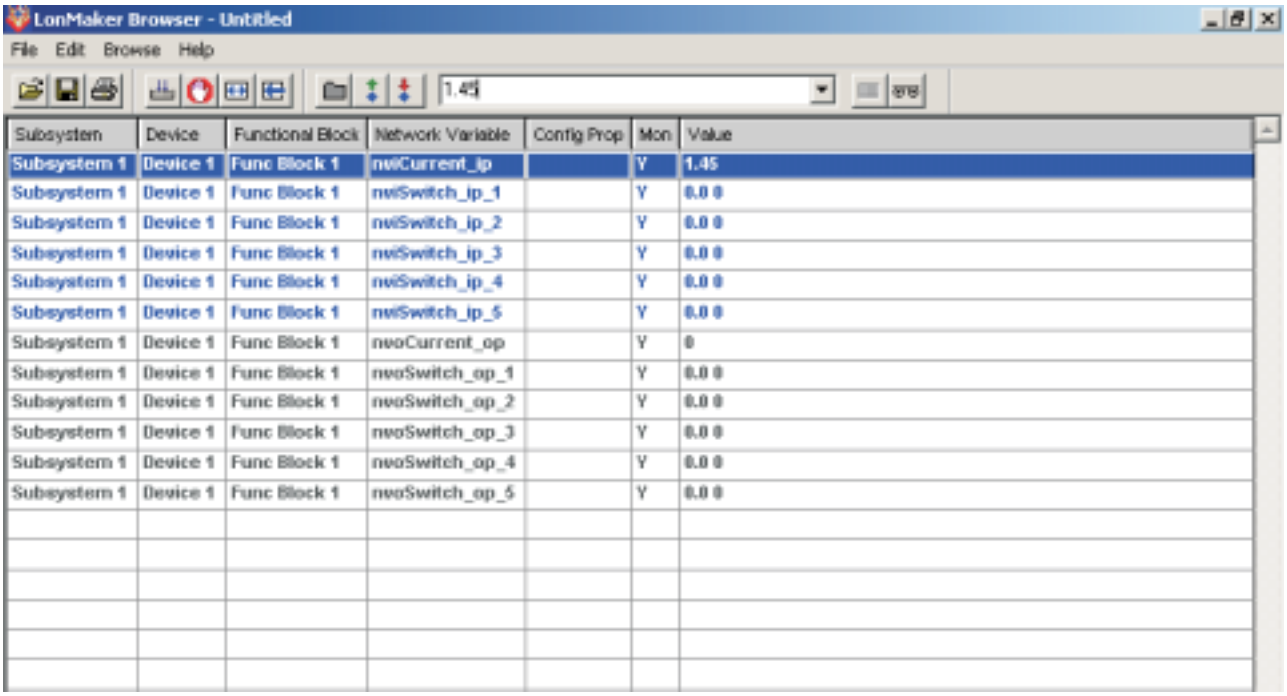


After clicking on 'Browse' following window appears and user can monitor all the variables at a time by clicking on 'Monitor all on' button as shown.



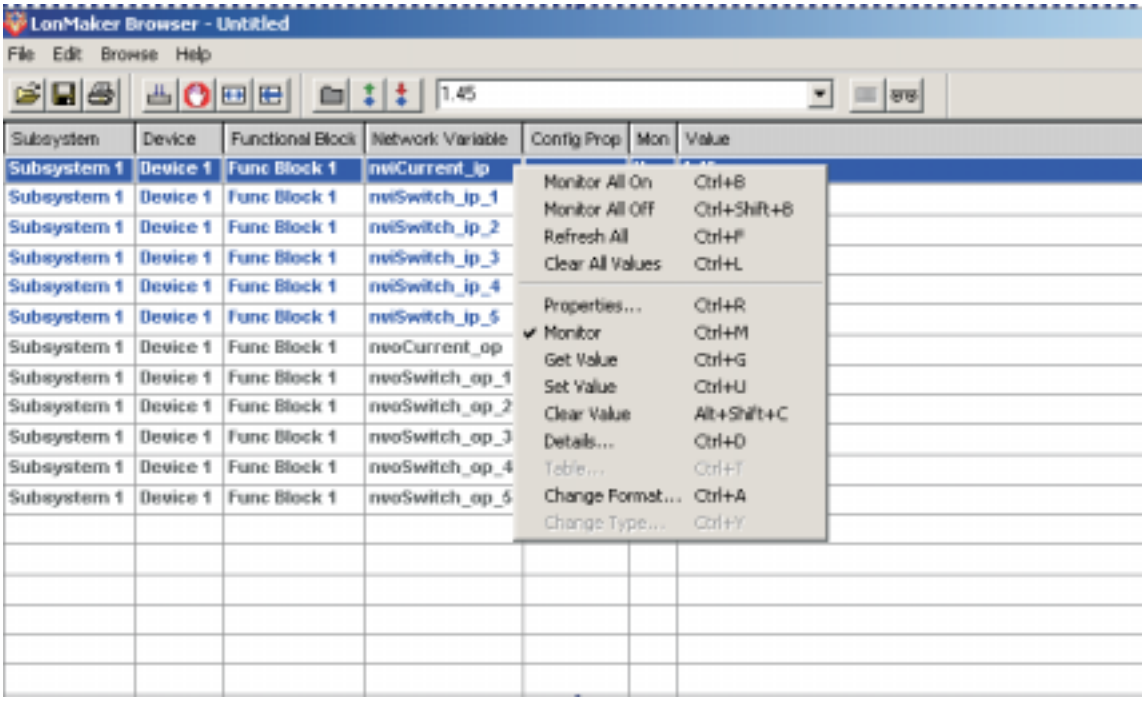
Subsystem	Device	Func Block	Network Variable	Config Prop	Mon	Value
Subsystem 1	Device 1	Func Block 1	nviCurrent_ip		N	0
Subsystem 1	Device 1	Func Block 1	nviSwitch_ip_1		N	0.0 0
Subsystem 1	Device 1	Func Block 1	nviSwitch_ip_2		N	0.0 0
Subsystem 1	Device 1	Func Block 1	nviSwitch_ip_3		N	0.0 0
Subsystem 1	Device 1	Func Block 1	nviSwitch_ip_4		N	0.0 0
Subsystem 1	Device 1	Func Block 1	nviSwitch_ip_5		N	0.0 0
Subsystem 1	Device 1	Func Block 1	nvoCurrent_op		N	0
Subsystem 1	Device 1	Func Block 1	nvoSwitch_op_1		N	0.0 0
Subsystem 1	Device 1	Func Block 1	nvoSwitch_op_2		N	0.0 0
Subsystem 1	Device 1	Func Block 1	nvoSwitch_op_3		N	0.0 0
Subsystem 1	Device 1	Func Block 1	nvoSwitch_op_4		N	0.0 0
Subsystem 1	Device 1	Func Block 1	nvoSwitch_op_5		N	0.0 0

User can change theinput network variable values by selecting corresponding input NV and then enter the value as shown.

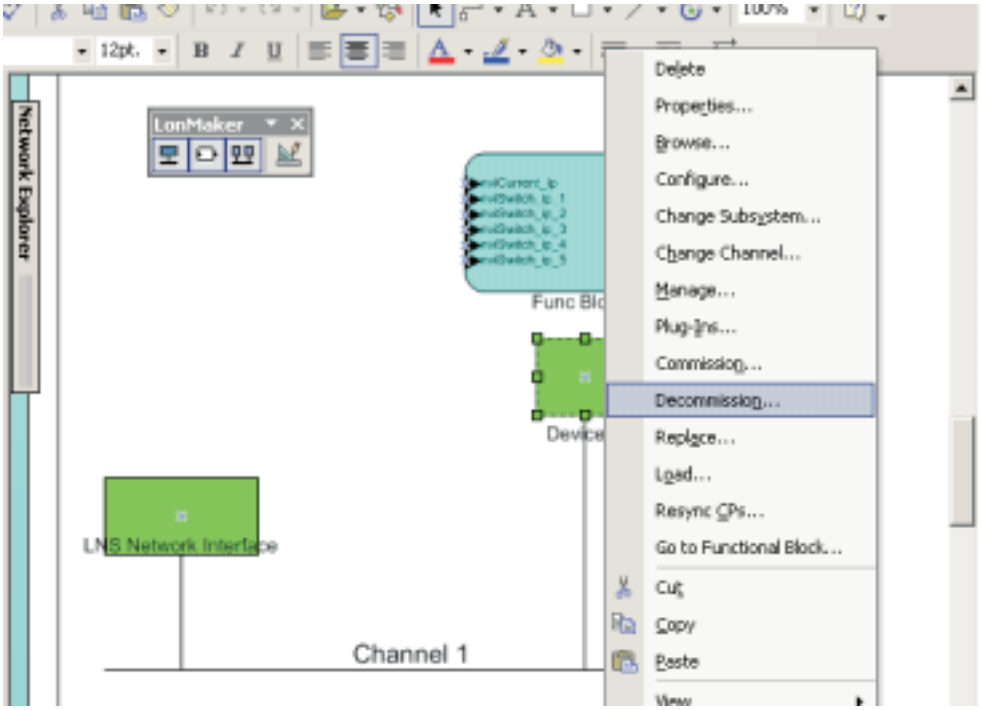


Subsystem	Device	Functional Block	Network Variable	Config Prop	Mon	Value
Subsystem 1	Device 1	Func Block 1	nviCurrent_ip		Y	1.45
Subsystem 1	Device 1	Func Block 1	nviSwitch_ip_1		Y	0.0 0
Subsystem 1	Device 1	Func Block 1	nviSwitch_ip_2		Y	0.0 0
Subsystem 1	Device 1	Func Block 1	nviSwitch_ip_3		Y	0.0 0
Subsystem 1	Device 1	Func Block 1	nviSwitch_ip_4		Y	0.0 0
Subsystem 1	Device 1	Func Block 1	nviSwitch_ip_5		Y	0.0 0
Subsystem 1	Device 1	Func Block 1	nvoCurrent_op		Y	0
Subsystem 1	Device 1	Func Block 1	nvoSwitch_op_1		Y	0.0 0
Subsystem 1	Device 1	Func Block 1	nvoSwitch_op_2		Y	0.0 0
Subsystem 1	Device 1	Func Block 1	nvoSwitch_op_3		Y	0.0 0
Subsystem 1	Device 1	Func Block 1	nvoSwitch_op_4		Y	0.0 0
Subsystem 1	Device 1	Func Block 1	nvoSwitch_op_5		Y	0.0 0

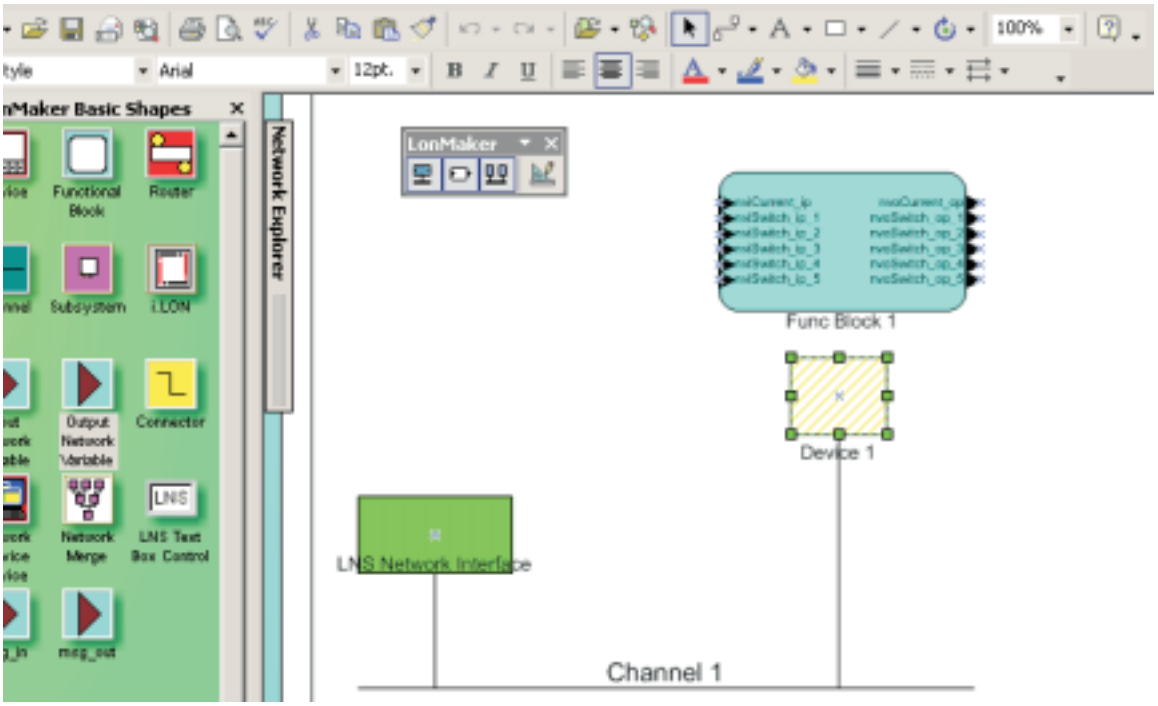
User can monitor single variable also by right clicking on selected network variable.
Also user can stop the monitor by clicking on ‘Monitor All Off’ option or deselecting monitor button in case of single variable.



If you want to deconmmission the device right click on the devise. Select ‘Decommission Device’ option. Your device will be decommissioned.



After Decommissioning:

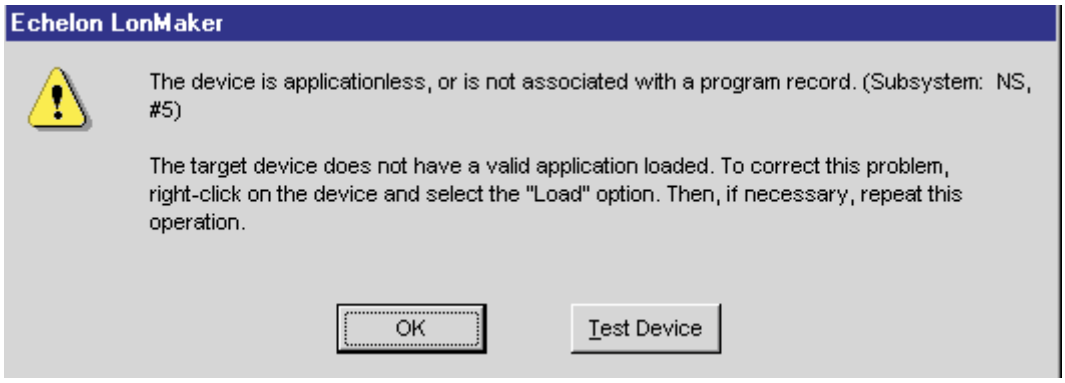


5.5.2 To open the existing network using LonMaker

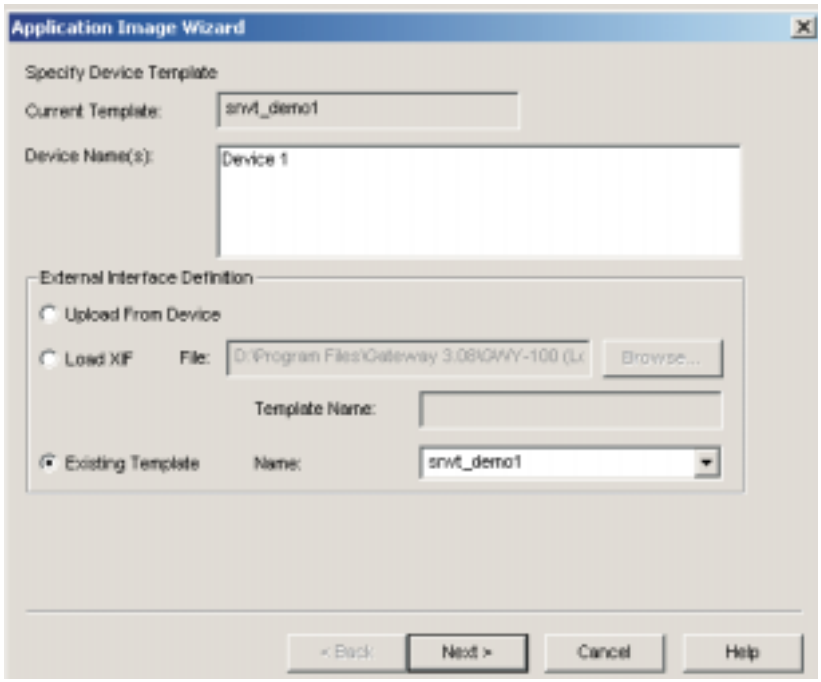
1.Click on LonMaker for Windows (Start => Programs=> LonMaker for Windows.)
2. Select appropriate 'Drawing Directory,Drawing Name and Database Name' from the Existing Network. Then click on 'Open Network'.
3.Next window appears. Click on 'Enable Macros'.
4. Click Next till last window appears. Click on 'Finish'.
5. Follow steps 15 to step 19.

5.6 Troubleshooting for LonWorks

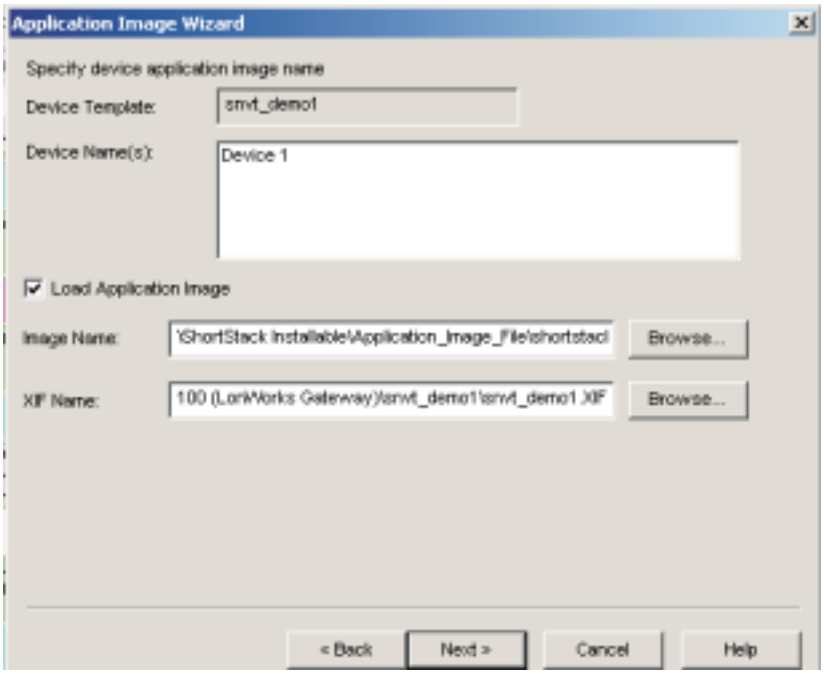
LonMaker shows the following error if the Application Image file in the device is corrupted.


Echelon LonMaker
The device is applicationless, or is not associated with a program record. (Subsystem: NS, #5)
The target device does not have a valid application loaded. To correct this problem, right-click on the device and select the "Load" option. Then, if necessary, repeat this operation.
OK
Test Device

In this case Service(SVC) LED remains ON.
To correct the error right click on the device and select 'Load'. Following window appears.



This window shows the Existing Template Name. Click Next.



Select 'Load Application Image '.
In front of 'Image Name' browse

For Example

For the non-ROHS compliant IC FT3120, follow the below given path:
..\Lonworks\ShortStack\Firmware\Images\shortstack3120_v2.nxe
OR
For software versions 3.11 and above
...\Gateway ..\GWY-100 (LonWorks Gateway)\ShortStack Firmware Images\shortstack3120_v2.nxe

For the ROHS compliant IC FT3120, follow the below given path:
...\Gateway ..\GWY-100 (LonWorks Gateway)\ShortStack Firmware Images\SS_FT3120_10000KHz.nxe

In front of 'XIF Name' browse the xif for the exsting template.

For example
..\Gateway 3.08\GWY-100 (LonWorks Gateway)\snvt_demo1\snvt_demo1.xif

Then click on Next till the last window.
Click Finish.

After Application Image File is completely downloaded, the Service(SVC) LED will change its status according to the previous status i.e. either it will be blinking or in OFF condition.

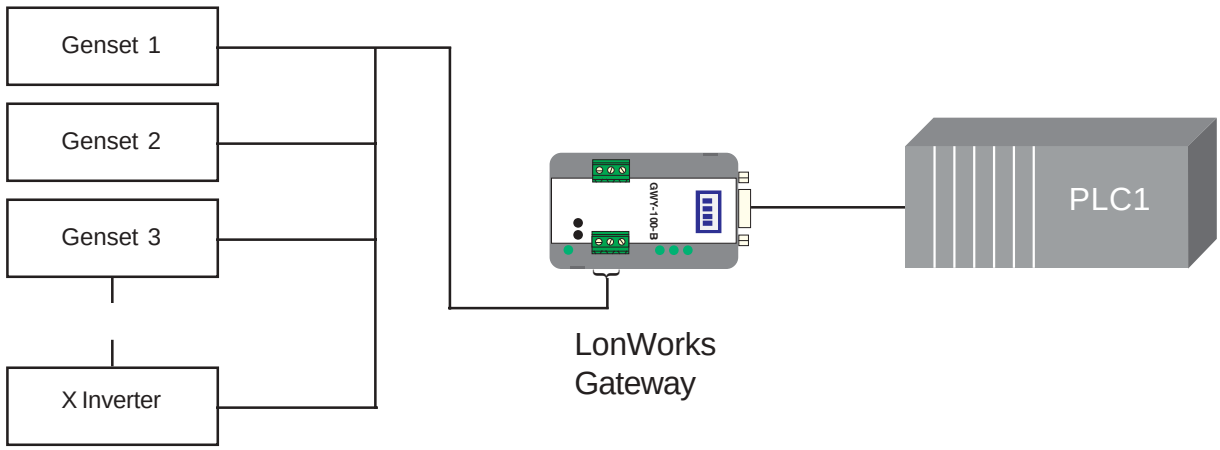
APPLICATIONS

In this chapter. . . .

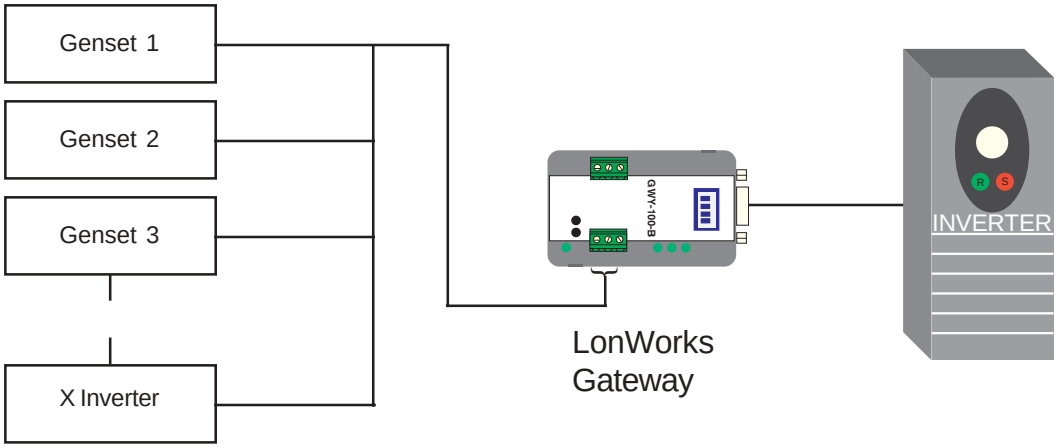
- Possible Applications using GWY-100-B

6.1 Possible Applications of GWY-100-B

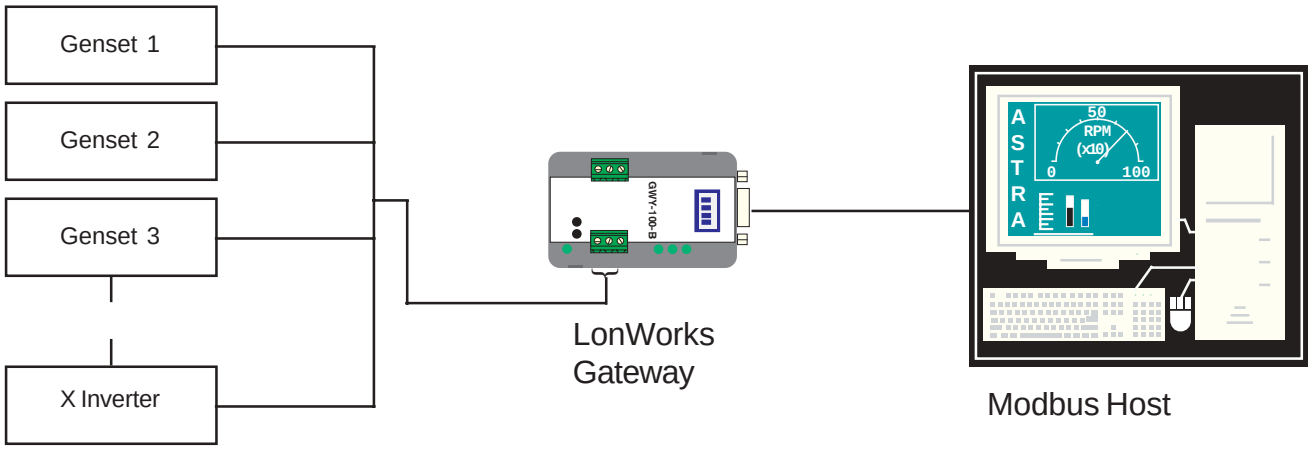
1. Multiple LonWorks Devices connected to one PLC



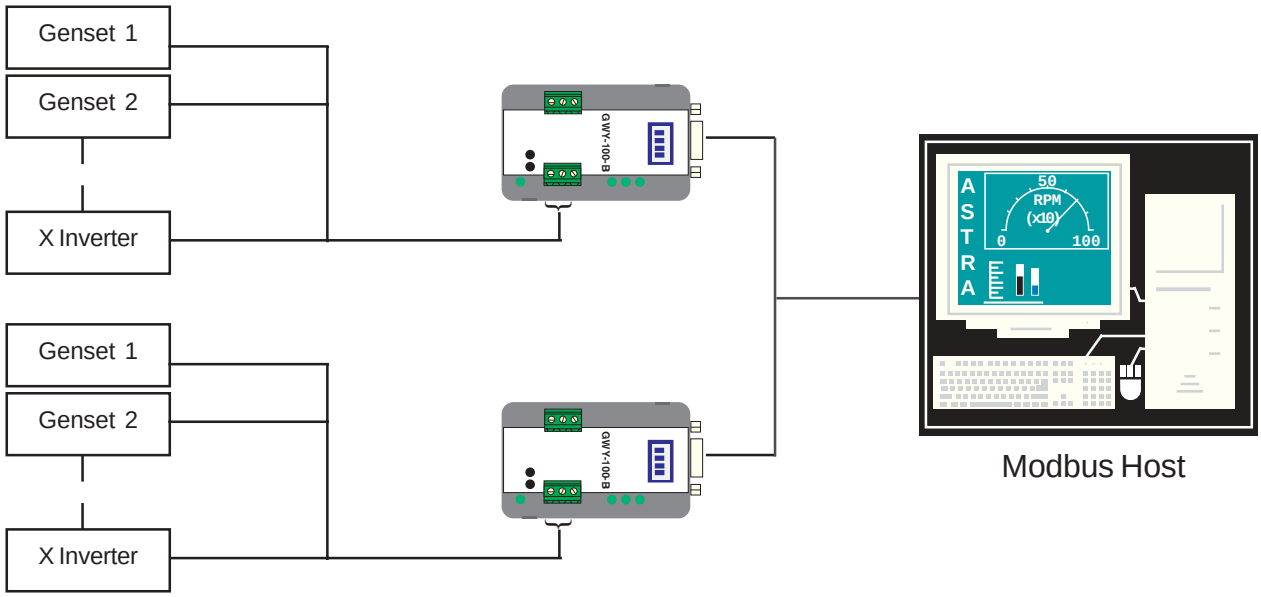
2. Multiple LonWorks Devices connected to Inverter



3. Multiple LonWorks Devices connected to Modbus Host



4. Multiple LonWorks Networks and multiple LonWorks Gateways

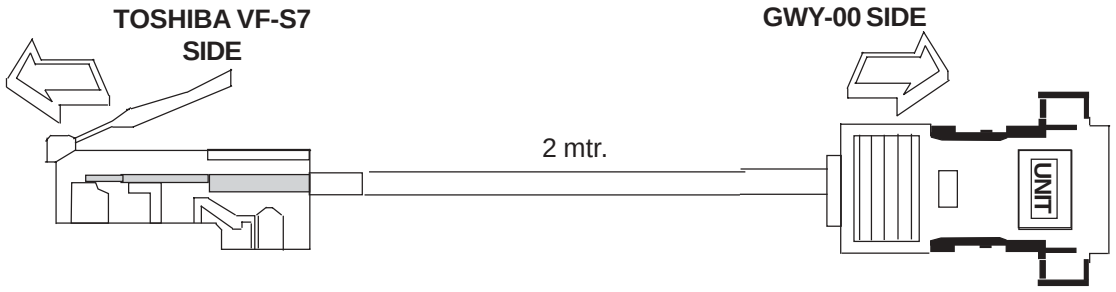


COMMUNICATION CABLES FOR GWY-100-B

In this chapter. . . .

- TOSHIBA VF-S7/S9/S11 To GWY-100-B
- IBM Cable

7.1 Toshiba VF-S7/S9/S11 to GWY-100-B(EC-P-050-00)



8 PIN MODULAR CONNECTOR (RS232)

SIGNALS	Pin #
	1
SG	2
RXD	3
	4
CMOS TXD	5
	6
	7
	8

Shield Wire

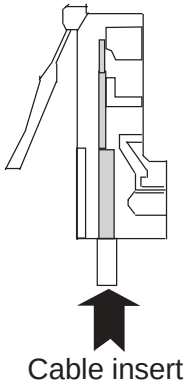
Shield Wire

DB9 MALE (RS232)

Pin #	SIGNALS
1	
2	
3	RXD
4	
5	SG
6	
7	CMOS TXD
8	
9	

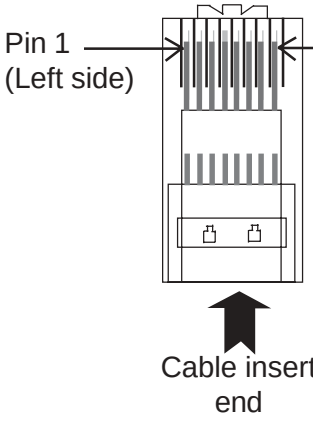
8 PIN MODULAR CONNECTOR PINOUTS

FRONT VIEW



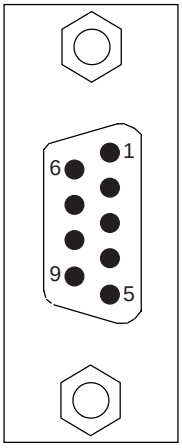
Cable insert end

R.H.S. VIEW

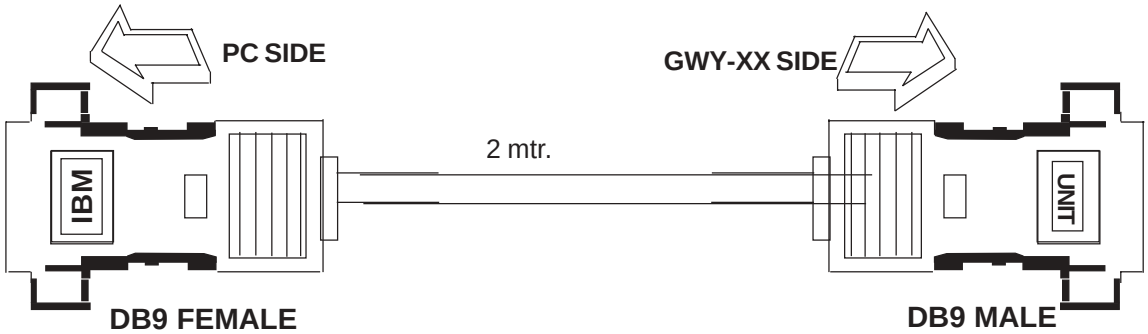


Cable insert end

DB9 MALE PINOUTS



7.2 IBM Cable for GWY-100-B(IBM0909-1-00)



DB9 FEMALE (RS232)

SIGNALS	Pin #
	1
RXD	2
TXD	3
	4
SG	5
	6
	7
	8
	9

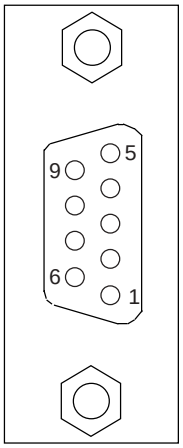
Shield Wire

DB9 MALE (RS232)

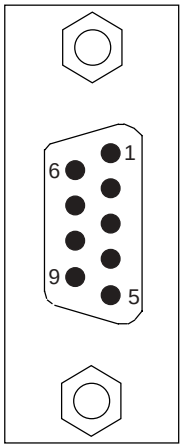
Pin #	SIGNALS
1	
2	TXD
3	RXD
4	
5	SG
6	
7	
8	
9	

Shield Wire

DB9 FEMALE PINOUTS



DB9 MALE PINOUTS



Index

A

Applications of GWY-100-B 59

B

Binding of Network Variables 20

C

Communication Parameters 27
Communication Port Details 11
Control Word 26
Create A New Project 32
Create Template using LonMaker 40

D

Dimensional details 10

E

Error Indication Bit 27

F

Flowchart Steps 30

G

Gateway Modes and Data Handling 23
GWY-100-B Operation 16
GWY-100-B Specifications 8

I

IBM Cable for GWY-100-B(IBM0909-1-00) 63
Install Gateway Setup Software 29
Install Short Stack Wizard 29
Introduction to GWY-100-B 6
Introduction To LonWorks 18

L

LED Status 14
LonWorks Gateway 29

M

Master-Master Configuration 23
Master-Slave Configuration 24
Mounting Instructions 10

N

Network Variables 19

O

Open Exsting Gateway Project 40

P

Project 16
Purpose of this manual 6
Purpose of Using LonWorks Gateway Utility 29
Push Buttons 14

R

Repeat Cycle 26
Run the utility LonWorks Gateway 29

S

SNVTs 20
Switch Settings 13. *See also* GWY-100-B Operation

T

Toshiba VF-S7/S9/S11 to GWY-100-B(EC-P-050-00) 62
Troubleshooting for LonWorks 57

U

UNVTs 20